

The ocean carrier

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Lusitania—Fastest Transatlantic Passenger Service

The Ocean Carrier

A History and Analysis of the Shipping Industry
Discussion of the Rates of Ocean Freight and Freight

By

J. Russell Smith, Ph.D.

Assistant Professor of Industry in The Wharton School of Business Administration,
University of Pennsylvania

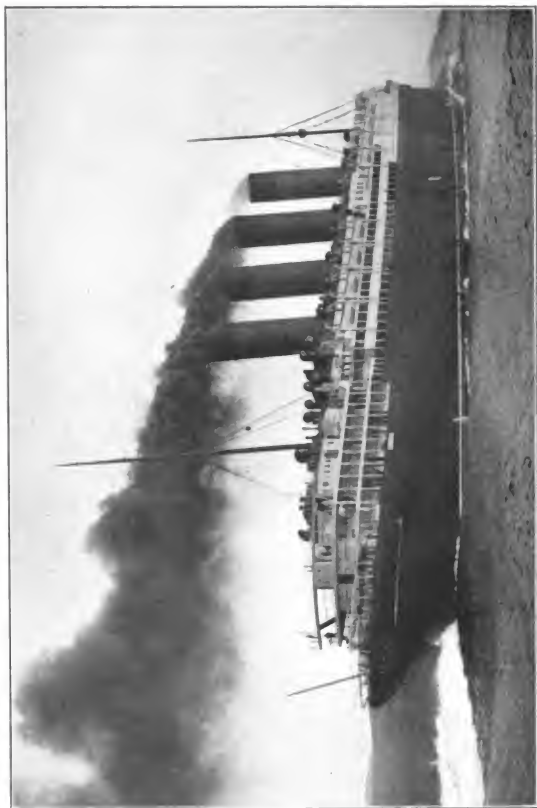
Author of "The Organization of Ocean Commerce," "The Economics of
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G. P. Putnam's Sons
New York and London

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PREFACE.

THIS book is the outgrowth of the study of three questions—the development of line traffic, the combinations among carriers to control rates, and the combination of steamship lines and railways. This work has occupied a considerable part of my time for three years, and came after the completion of a monograph on the *Organization of Ocean Commerce*, which in turn was the outgrowth of investigations begun for the United States Government's Isthmian Canal Commission in 1899-1901.

It should be noted that this is a study primarily of the ocean service—it is an economic study. From start to finish I have been struck with the astonishing absence of any such point of view in the minds of the numerous writers who have dealt with the activities of the ocean. The biographies of men and of ships and the technical details of ships appear to have been the interesting things. Who built the ship, just when, just where, how long she was, to the inch, how wide, how deep, the material, the tonnage, the exact size of her engines, the number of strokes per minute, her speed, her best voyage-record, who captained her, at least in her prime—such information might

be collected by the volume. But there is an astonishing silence in the pages of the past as to what these wonderfully detailed ships did. What they carried, where they carried it, for whom, at what rate, under what method of management, are things rarely told by writers on maritime topics. Such records do, however, exist as incidental statements in a wide variety of documents. Consequently this book, which, so far as I know, is the first in this particular field, has arisen from the digesting of fragmentary and widely scattered material. It is doubtless true that books of travel and biography, files of old newspapers, personal correspondence in old trunks, and other private records contain many scraps that I have not seen. But I believe I have seen enough of the material to enable me in this volume to trace out the main lines of past development and detect the dominant factors in the present situation. It would be greatly appreciated if communications might be received from persons finding sources of information which it is evident that I have not seen. I know there is a vast amount of such material.

I wish to acknowledge my indebtedness to Professor Emory R. Johnson for counsel in the conduct of the work; to Mr. Ray Morris for similar assistance and also for his active aid in the securing of illustrations; to Mr. A. R. Coleman of Philadelphia and to my wife for assistance in some of the historical investigations, and

to Dr. Thomas Conway, Jr., for some data concerning the coasting trade.

I wish to express my thanks to the editors of the *Journal of Political Economy* and the *Political Science Quarterly* for permission to draw on two articles which, after being in part rewritten, were in part embodied in Chaps. XIII to XVII.

Acknowledgment is hereby made of the assistance received from the Carnegie Institution of Washington in the collection and preparation of materials for this monograph.

J. R. S.

Wharton School of Finance and Commerce,
University of Pennsylvania, July, 1908.

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PART I.

The Service of the Ocean Carrier.

CHAPTER I.

SHIP DEVELOPMENT—THE EVOLUTION OF THE VEHICLE.

IN the space of a century and a decade from the time of our first census, 1790, to the last, in 1900, the United States rose from a string of feeble commonwealths with a population of 3,929,214 to a world power of nearly eighty million people. That amazing twenty-fold growth of the nation may serve as a parallel by which we can get some concept of the development that has taken place in the ship that served us at the two periods, but there is this difference—the ship has advanced faster than the nation; the present ship is sixty times bigger and several times faster than the prototype of George Washington's day. Taken on the even basis of ton for ton, the shipping of the present is five or six times as efficient as that at the beginning of the period under review.

This remarkable improvement is the result of a rapid evolution produced by the competition of sail and steam for motive power, and wood, iron, and steel for material of construction. This double competition has made a rather complex result, since an improvement in one of these fields

often reacted in the other, and both have conduced to improvements in design that cannot be easily classified under either heading. One peculiarity of the century of progress is the fact that we have had revolutions without the destruction of the old. As material for great vessels iron has replaced wood and steel has replaced iron, but wood continues to be used. Steam may be said to have vanquished sail, but sailing vessels are still being built. The steps in the progress of this competition merit attention.

The rivalry between steam and sail is distinctly a rivalry between the modern and the old. For a thousand years man has hoisted a sail to be filled by the winds of nature, which took him across the sea with all the fickleness and uncertainty for which the wind is famed. This motive power is cheap but it is variable, uncertain, may be adverse and there are zones of calms. The sailing vessel may make a short journey between Saturday and Monday, and on repeating the trip she may not reach port until Monday week. The fact that Providence furnishes the power gives the sailer cheaper costs of construction than the steamer and more space to stow freight. The space taken by equipment is but one-twentieth in comparison to the steamer's one-third. The building of engines gives greater initial cost; their repair requires greater maintenance cost; their operation gives a fuel bill unknown to the sailer; and the operation of this mechanical ship requires a crew at least three-eighths larger than

that of the sailer, and examples of best modern types would show crew rolls with variation of 100 per cent. between the two types. But the steamer has speed and a regularity that gives small heed to the ordinary whims of wind.

The object of the ship is transportation, and the users of transportation usually want to be able to know in advance the date of its performance. By this standard the slow and irregular sailer is found wanting for all exacting service. A few years ago it was declared that "the ratio of four to one" is "the present measure of the efficiency of steam tonnage compared with sail tonnage."¹ In this contest low cost and low efficiency is giving way to high cost and high efficiency.

A century ago the steam vessel was a dream of ridiculed enthusiasts and the world's commerce was using blocky old tubs with blunt ends and a width sometimes one-third as great as their length. Some of them had high bows and sterns, relics of the mediæval fighting towers, and the average vessel was probably below 200 tons register. A few vessels were much larger than this; for example the *Grand Turk*, 1791, with 564 tons, was a record-breaker for American builders.

The rapid increase in our commerce during the period of the Napoleonic wars, when we were helping to feed Europe, led to great increase in American ship-building, and Yankee ingenuity made great improvements in design. The decks were flattened and the vessel narrowed.

¹ *Report of U. S. Commissioner of Navigation*, 1903, p. 181.

The period of the War of 1812 saw two suggestive changes in shipping technique. The almost constant danger of capture at sea by either French or British vessels made speed an essential for the American merchantman that was eventually to market its cargo. The war made privateering profitable, and if the small privateer could catch a big merchantman, or elude a big man-of-war, the returns of the business were likely to be good. Spurred by this impetus the American ship-builder made astonishing improvements in speed. Baltimore seems to have been the leader in this and was long famed for her fast clippers. Two hundred and nine of these vessels went to sea from that port as privateers during the War of 1812 and not one was captured.

This name "clipper" should not be confused with the so-called clipper ship which came into vogue thirty years later and is subsequently a subject of discussion in this book.

Parallel with this came the general adoption of the steamboat for river use. Fulton's *Clermont* began on the Hudson, 1807; the Delaware was shortly provided with a similar service; in 1812 the great Father of Waters was redeemed from its one-sided commerce that could only go downstream with the flatboat and the raft; and in 1814 there were five steamers on the Thames. The general adoption of steamers on rivers was almost immediate. The steam mastery of the sea was more difficult. During the twenty-five years 1815-1840 the steamer, feeling her way behind

the protection of the shore, was gaining the necessary experience and receiving the needed perfection to sally forth upon the high seas and challenge the sail to the final contest for maritime supremacy. In 1809 the American flag was the first to be steam-borne upon the high seas, flying at the mast-head of the *Comet* as she journeyed from New York to Philadelphia. In 1816 there was a line established from New York to New London, Conn., and one across the English Channel from Brighton to Havre. The mail route from Ireland to Wales was a very important one, and the distance between Holyhead and Dublin is only sixty-five miles, but the sailing service there often took three or four days and sometimes seven or nine days. In 1821 steamers were tried with such signal success that they were promptly used in various services to the continent and in British coasting trade. A Parliamentary report of 1822 showed that upon thirty coasting routes the average speed by steam was eight or nine knots ~~per hour~~, and the voyage was completed in one-half to one-sixteenth the time required by sailing vessels.

It is interesting to note that at this time the steamers sailing upon the ocean were using the same side-wheel propellers that were in use on river boats, and they had the hulls of sailing vessels. The adaptation of the steam engine to marine use and its improvement in efficiency were slow. The *Savannah*, a sailing vessel with auxiliary engines, crossed the Atlantic in 1819 using her engines a part of the time. This mixed effort is

commonly hailed as the beginning of ocean steam navigation, but the practical difficulties with such weak and heavy engines as then existed were such that it was 1838 before transatlantic steam navigation in a commercial sense may be said to have had its beginning in the repeated and successful voyages of the *Sirius* and *Great Western*, which vessels, both British, one from Bristol, the other from Liverpool, practically had a race to New York and arrived within a few hours of each other.

In the meantime the sailing vessel had experienced great technical progress. The American ship-builders had been stimulated to produce a fast boat by the dangerous commercial conditions existing between 1790-1815, and upon the return of peace and the increase of trade and travel after 1815 they began to study ship design in a scientific manner. As a result of experiment and copying the lines of fast-swimming fish we soon evolved the packet ship, which was the finest seagoing vessel in the world. Until the middle of the century the maximum size of these vessels was about 1,000 tons register, and they could carry from 600 to 1,000 persons. The time to Europe was nineteen to twenty days, which was two or three days better than the English vessels did, and there were records of crossing the Atlantic in twelve or thirteen days. This superiority of the American packet over its rivals from other countries was so marked and so well recognized that it had a practical monopoly of the passenger, mail, and

express traffic. This superiority of the American sailor and his vessel is yet held in speed contests, as witnessed by all the international yacht races of a half-century.

The supremacy of the American and his sailing vessel was challenged by the British steamer. Nature made England maritime. Being set down in the sea within sight of the continent and of Ireland she had had excellent opportunity to practise in the steamer business in short journeys to neighboring lands. Twenty-two years of this, from 1816, when the first English Channel line was established, to 1838, served for the accumulation of enough experience for the successful mastery of the problem of crossing the Atlantic in a real steamer. The Atlantic race of the *Sirius* and the *Great Western* mentioned above was the real beginning of transatlantic steam traffic, which has, with very short breaks during the first winters, been continuous from that time. The *Great Western* kept right on, and while the *Sirius* returned to her old work in British coasting trade other vessels were quickly built to get a share in the novel traffic, for the rates on the new steamers to New York were high. The British Government became convinced of the feasibility of the Atlantic steamers for the mail service, and, having been long in the habit of advertising for private offers for the mail service, a mail subsidy was offered by the government and taken by Samuel Cunard, the founder of the Cunard line. Steam vessels and lines rapidly

multiplied, but mechanical and architectural improvements had to come first. This was a matter of years.

The paddle-wheel is admirable for river traffic, but it is ill-adapted to the ocean, where the rolling vessel often has one wheel clear of the water and the other deeply buried. There was at the same time dissatisfaction with wood as a material for the larger vessels that were desired in the transatlantic trade. There had been some occasional experiments with iron vessels from 1777, but they had their practical beginning about 1830, and one of 600 tons was built in 1837. These experimental vessels easily overcame the idea that an iron boat being of heavy material must sink. Iron boats not only float, but are actually lighter than wooden vessels of same size, and therefore have more buoyancy. The iron vessel can be strengthened at the desired point easier than the wooden one, and the comparison of a few wrecks soon proved that the iron vessel could stand more pounding and had a stronger hull than a wooden vessel. The fact that the iron of the hull disarranged the compass was an effective barrier to an open sea journey until 1839, when an improvement in the compass made that invaluable instrument workable on iron ships. The way was now open for the use of iron on any vessels, and in 1840 the famous engineer Brunel designed the *Great Britain*, an iron giant of that day, built for the New York trade. This vessel of 2,984 tons was an innovator in size, in material, and in mechanical

equipment, for she was driven by the screw propeller, a device that had been proved efficient in 1836 by John Ericsson. The *Great Britain* was a success, but Brunel was rather ahead of his time. He had seized upon new processes that had, like most improvements, to make their way gradually. As late as 1839 the same Brunel built the *Great Eastern*, which had both screw and paddle-wheels. The slow adoption of iron was due in part to the conservative influence of the Cunards, the leading line of Britain, and the one enjoying the government subsidy. This company built wooden paddle-wheelers while Brunel built the *Great Britain*, and the Cunards only adopted iron hulls in 1856. The screw came into general use about 1850. In 1853 iron was the material used in building one-quarter or more of the vessels built in Great Britain and one-quarter were propelled by steam.

The American Civil War developed the ironclad and introduced iron to the war fleets of the world, and to the peace fleets as well. The economic situation in Great Britain made that country the leader in iron merchant vessels. She was devoid of forests and supplies of timber, but was the world's leader in the manufacture of iron. Consequently the transfer to iron ships was rapid and in less than half a century the disappearance of wooden ships in British yards had become complete. A similar period served for the disappearance of iron as building material, for in 1875 experiments showed the suitability of steel, which

is merely a better form of iron. In four years the new material was used in one-tenth of the new vessels built on the Clyde, and in ten more years its virtue was so widely recognized that its use in new vessels was well-nigh universal, amounting to 97 per cent.

The change from wood to iron did not come so rapidly in the United States as in Great Britain. We were exporters of wood and importers of iron; we had the equipment for building the wooden ship, and our wooden ship was the best in the world. During the Civil War the industry of the country was paralyzed, and since that period our merchant marine has been in a state of low development, being limited largely to the coasting and sailing vessel trades. Here wood had its stronghold, and when Great Britain had entirely ceased to build wooden vessels they still outnumbered iron in this country one and one-half to one.

The accompanying table of materials shows the progress of the different materials in the world's navies since 1890. That is a period during which new building has been predominantly of steel, as is shown by the 560 per cent. increase in tonnage. Wood and iron have decreased respectively fifty-two and forty per cent. These are not exact measures of the virtue of the two materials, for wood has been used as material of construction much more than iron, so that vessels of wood have been replenished while those of iron have not been affected much by any factor except the

natural reduction of tonnage existing in 1890. The life of a wooden ship is short in comparison to iron. There are some cases of wonderful longevity of wooden ships, the century mark even having been reached, but the East India Company had a general rule that the life of the ship in their business was eight years, and that she was then sometimes worth repairing for four more years of service. The life of an iron ship has scarcely been determined on the basis of life of material,¹ but they are steadily being broken up because they are obsolete and incapable of competing with the newest types embodying the results of a half-century of progress in motive power and design. These improvements in power and design have been made in both steam and sail.

Materials of World's Merchant Marine.

(From *Annual Report Commissioner of Navigation*, 1904, p. 253.)

Year.	Power.	Wood.		Iron.		Steel.	
		No.	Tons.	No.	Tons.	No.	Tons.
1890.	Steam.....	902	360,147	7,719	8,495,920	2,343	4,086,555
	Sail.....	18,924	6,693,738	1,879	2,021,593	248	348,653
		19,826	7,053,885	9,598	10,517,513	2,591	4,435,208
1895.	Steam.....	1,007	306,911	7,099	7,432,890	4,994	9,038,000
	Sail.....	14,526	5,173,766	1,671	1,778,671	801	1,185,101
		15,533	5,534,677	8,770	9,211,561	5,795	10,223,101
1900.	Steam.....	1,158	382,131	6,262	5,915,714	8,286	15,999,406
	Sail.....	9,970	3,627,491	1,386	1,482,388	1,082	1,509,298
		11,128	4,009,622	7,648	7,398,102	9,368	17,508,704
1904.	Steam.....	1,289	419,596	5,684	5,067,025	11,299	23,072,876
	Sail.....	8,201	3,035,654	1,195	1,280,293	1,352	1,792,974
		9,490	3,455,610	6,879	6,347,318	12,651	24,865,850
Per ct., 1904 to 1890.		.....	48	.....	60	.....	560

¹ The career of the *Great Britain*, the first iron Atlantic steamer, is interesting proof of this fact. She was launched in 1843, spent the winter of 1846-7 ashore on the rocks of the Irish coast, was re-engined, spent twenty-two years in

The marine engine has been improved more than the hull since the first vessel steamed across the Atlantic. In 1899 an old steamer was torn up and her engine weighed seventeen times as much per horse-power as the then best type. The Atlantic racers of 1840 had a boiler pressure of thirteen lbs. per sq. in., and passed the steam from the cylinder where it did the work directly to the condensers. The compound engine passes the steam from the first cylinder, where it has great pressure, to a second cylinder with greater size and less pressure per unit of area. The pistons from both cylinders drive a common shaft, but the connecting rods exert their pressure upon it at different angles and there is an interval of time between the strokes of the two pistons. The available power from a given amount of steam is not doubled, but it is considerably increased. The compound engine was applied in Glasgow in 1856, was put into vessels in China trade in 1865, and was generally adopted about 1870. Boiler pressures were raised until 200 lbs. per sq. in. became common in the last decade of the nineteenth century; the compound or double-expansion engine was followed by the triple-expansion and it in turn by the quadruple-expansion engine. In the sixty-five years from 1840-1905 the improvements just mentioned, along with

the Melbourne trade, and was converted into a sailing vessel in 1882, and in 1895 she was reported as doing service as a coal hulk at Falkland Islands.—See Henry Fry's *History of North Atlantic Steam Navigation*, p. 43.

better combustion by forced draught, the return of heated water to boilers, and many minor improvements have reduced the coal required for the horse-power hour from five and one-half lbs. to about one lb., and the end is not yet. Theoretically the best engines are yet getting less than one-fifth of the power from coal.

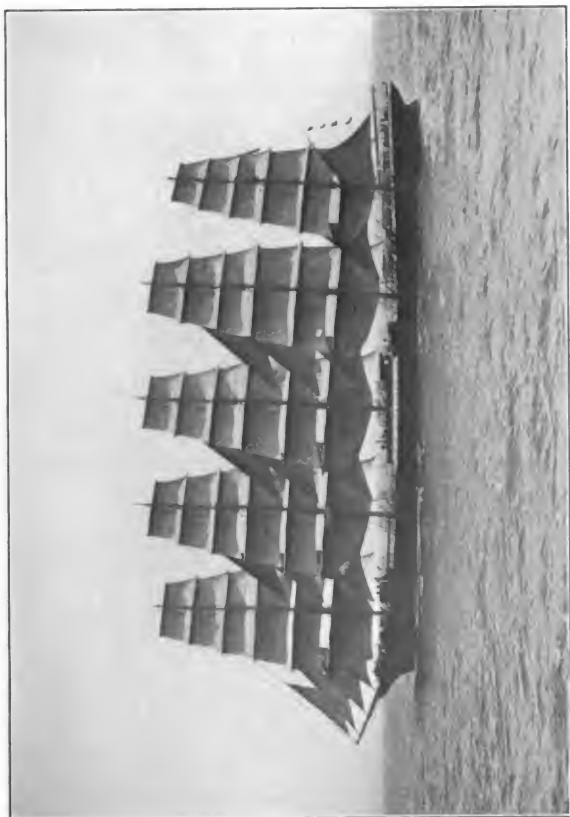
The turbine is apparently opening a new epoch in steam navigation. With the new Cunarders it leads the world in size and speed of vessels. It makes no great saving in coal, but it uses its power advantageously. It is smaller and takes up much less space. It is simpler, occasions less friction, less wear and repair. Its operation is quiet. Like an electric motor, the parts are balanced. It does not shake the ship to pieces.

Another improvement of great value has been the division of the ship into water-tight compartments, of which one could be filled with water and the ship, buoyed by the remaining seven-eighths or eleven-twelfths of her hull, still float in safety. This also enables the ship to have separate engines and engine-rooms, so that one of these may be flooded and the other run steadily onward. Double engines mean twin screws, which under all circumstances are great guardians of the ship's safety. The modern steamer dependent upon one screw is helpless with a broken shaft. With twin screws she proceeds at something more than half speed and a calamity is turned into a mishap. The twin screw is therefore the usual thing on

passenger ships; the new turbine Cunarders have four screws.

During the two-thirds of a century that have elapsed since the *Sirius* and *Great Western* raced to New York in 1838 the designers of sailing vessels have not by any means been idle. The sailing vessel is still with us and during the first fifty years of the oceanic competition she held her own numerically at least, and it is only in the last fifteen years that she has had to go down ingloriously before her steaming sister.

The steamer with hull and machinery has a greater field in which to perfect improvements, and it is really remarkable how much the sailing vessel has been improved and how long she has held out under the goading competition of advancing steam. Iron and steel were found to be quite as usable in the construction of sailing vessels as in steamers, and these materials have been adopted, although it did not come as promptly as was the case with steam vessels. The spreading of sails to the wind seems to be a simple process, but it has been improved almost as fast as the devices for harnessing steam. The typical sailing vessel of 1850 was a square-rigged ship—a vessel with several spars at right angles to each of several masts and many square sails high aloft. Much rigging held this complex harness together, and the numerous sails were set and reefed by many men far aloft at the risk of their lives. The thousand-ton "East Indiaman" of 1850 had a crew of eighty hands, a 2,500-ton four-masted bark



Prussen—Five-masted Ship with 60,000 sq. ft. of Sail Area

of 1900 had thirty-three hands. Taking the figures for the British merchant marine for twenty-one years it appears that the sailing vessel has actually reduced her crew faster than the steamer. For British vessels engaged in the foreign trade the number of crew per one hundred tons net register has been as follows:

	1880.	1890.	1898.	1901.	Per cent. reduction.
Sailing vessel.....	2.32	1.96	1.65	1.61	31
Steamer.....	2.95	2.73	2.32	2.22	25

These figures from the British marine are but averages of many vessels of all ages and do not cover the case as accurately as would figures which described only the most modern types.

The British figures refer too much to the fast-disappearing square-rigged ship, which promises to disappear from the competition of the typical American sailing vessel, the schooner. The advantage of this rig¹ lies in the absence of the yards and spars, the sail being fastened on one side of the mast only and supported by booms and gaffs that swing upon the mast as a pivot. Each mast has a small top-sail and one great sail which can be hoisted by a rope from the deck. This is a safe process and one in which men can work to good advantage. This vessel was evolved by the Gloucester fishermen about 1745. In 1800 these fishing schooners were of from twenty to forty

¹ Any good unabridged dictionary gives cuts of the various and numerous varieties of sailing vessels, which are named in accordance with the method of sail arrangement, *i.e.*, the rig.

tons, and soon after they began to be used in the American coasting trade. By 1860 the typical coasting schooner had two masts and was of about 250 tons burden. If she were made larger the raising of anchor and sails required more men than were needed at any other time.

A three-masted schooner had been built in 1831. By 1850 they had passed the experimental stage, and by 1870 they were the prevalent type, ranging from an average size of 300 tons to 700 for the largest. Then followed one of the most striking of modern ship developments. The masts began to be multiplied. In 1880 a four-masted schooner was built; in 1888 came the five-master. A representative of this pattern, built in 1899, carries 4,000 tons of cargo. In 1900 came a six-master carrying 5,500 tons. All these were of wood and the centre of construction was the coast of Maine. In 1902 the present climax was reached in the launching of the *Thomas W. Lawson*, a seven-masted schooner built of steel and carrying 7,500 tons of cargo with the amazingly small crew of nineteen men. Of this vessel, recently wrecked, three decks were of steel, 135 ft. of the 193 ft. of mast were of steel; the standing rigging was of steel, and the sails were hoisted by steam. The steering gear was steam-driven. In this steam crew lies the secret of the small force of men aboard, and the ultimate value lies in the fact that she is of such a design that she can use auxiliary steam to harness the wind as she spreads her acre of sails. The net result of the working

of all these factors in the competition for the motive power is shown in the accompanying statistics of the world's merchant marine for a period of thirty-two years.

Table I. shows that since 1873 the steam tonnage of the world and of all countries has increased enormously and steadily—the average for the world being 336 per cent. for a quarter of a century and an average of over 100 per cent. for each of the three decades. During the time of this great absolute increase in steam tonnage, the sail tonnage, as shown in totals in Table II. or in detail in Table III., declined absolutely. This decline of forty per cent. in the world's total was not relieved by a gain in any single country, nor did any country hold its own. Norway having her forests and her lumber trade held out the longest, but with the new century her sail total fell. Table III. shows that most of the relative and absolute decline of the sailer has come since 1890. Before that time the efficiency of sailing vessels as cheap freight-carriers enabled them to outrank steamers in total tonnage, but the latter half of the decade 1880-90 was the period of the general adoption of steel hulls and triple-expansion engines. With these improvements in the steamer the sailing vessel could not compete and building fell off in favor of the improved steamer. The relative proportions of steam and sail at different periods show the newness of steam predominance. In 1874 sailing vessels were to steamers as 4.7 to 1, in 1890 1.2 to 1, in 1904 .34 to 1. Expressing it in

percentages, it appears that in that year eighteen per cent. of the world's shipping was propelled by sail. From the standpoint of work done, the application of the old rule of efficiency of 4 to 1 in favor of sail shows that sailing vessels are now doing but 5.3 per cent. of the world's ocean carrying.

TABLE I.—*Seagoing Steam Tonnage of the World.*
(*Répertoire Générale* of the Bureau Veritas for 1904-05.)

Countries.	—1873-74—		—1878-79—		—1888-89—	
	Tonnage.	Per cent.	Gross tonnage.	Per cent.	Gross tonnage.	Per cent.
Great Britain.....	2,624,431	60.4	3,465,187	62.4	6,873,552	62.3
United States.....	483,040	11.2	609,101	10.8	535,345	4.8
France.....	316,765	7.4	335,219	5.9	752,028	6.8
Germany.....	204,894	4.8	253,667	4.5	662,331	5.9
Spain.....	138,675	3.3	152,708	2.7	395,685	3.5
Italy.....	85,045	1.9	84,421	1.5	276,326	2.5
Holland.....	72,753	1.7	116,149	2.0	197,748	1.8
Russia.....	67,522	1.6	104,702	1.8	103,556	1.5
Norway.....	41,602	0.9	53,331	0.9	100,558	1.4
Japan.....	.....	.....	.....	.....	115,088	1.0
All others.....	293,466	6.8	420,690	7.5	913,720	8.3
Total.....	4,328,193	100.0	5,595,175	100.0	11,045,937	100.0

Countries.	—1898-99—		Inc., per ct., 1873-74 to 1898-99.	1904-05. Gross tonnage.
	Gross tonnage.	Per cent.		
Great Britain.....	10,993,111	58.5	311	14,889,175
United States.....	810,800	4.2	68	1,720,176
France.....	952,682	5.1	200	1,266,486
Germany.....	1,625,521	8.3	693	2,887,130
Spain.....	520,847	2.7	275	713,775
Italy.....	420,880	2.2	395	735,212
Holland.....	363,200	1.9	399	631,600
Russia.....	358,415	1.8	430	637,114
Norway.....	628,493	3.3	1,410	1,030,637
Japan.....	439,509	2.3	...	645,998
All others.....	1,773,674	9.5	504	2,743,174
Total.....	18,887,132	100.0	336	27,900,457

TABLE II.—*Seagoing Sail Tonnage of the World.*
(Same authority as Table No. I.)

Countries.	1873-74.	1878-79.	1888-89.	1898-99.	Per ct. dec.,	
					1874-99.	1904-05.
Great Britain..	5,320,089	5,596,018	4,215,634	2,910,555	45	2,080,249
United States.	2,132,838	2,075,832	1,913,090	1,285,859	40	1,405,813
Norway.....	1,137,177	1,374,824	1,328,296	1,144,482	0.6	749,354
Italy.....	1,126,032	963,625	718,889	463,767	59	523,910
Germany.....	893,952	914,674	737,028	535,937	40	506,101
France.....	768,959	595,933	352,418	279,412	64	494,123
All others....	2,807,689	2,796,524	2,370,934	2,073,757	26	1,993,498
Total....	14,185,836	14,317,430	11,636,289	8,693,769	40	7,812,957

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TABLE III.—*The World's Merchant Marine.*
(Recorded in Lloyd's, 100 tons or over.)

Year.	Steam—		Sail—	
	No.	Net tons.	No.	Net tons.
1890.....	11,108	8,295,514	21,190	9,166,279
1893.....	12,588	9,622,610	19,452	8,983,957
1894.....	12,907	10,111,769	17,814	8,503,294
1895.....	13,256	10,573,642	17,112	8,219,661
1896.....	13,652	11,027,603	16,228	7,876,264
1897.....	14,183	11,531,829	14,168	7,300,839
1898.....	14,701	12,073,074	13,351	7,049,958
1899.....	15,324	12,935,994	12,856	6,795,782
1900.....	15,898	13,856,513	12,524	6,674,370
1901.....	16,528	14,874,253	12,563	6,591,627
1902.....	17,156	16,026,372	12,472	6,577,776
1903.....	17,761	16,822,466	12,182	6,459,766
1904.....	18,467	17,682,141	10,823	6,156,505

This decline has been general, not local; it has affected the shipping of all countries, the trade of all oceans and of almost all commodities.

The claim is often made that there are special commodities and particular routes that belong exclusively to the traffic of the sailing vessel. Conspicuous among commodities supposed to belong to the sailer are nitrate of soda from Chile, lumber in the American coasting trade and elsewhere, and wheat from San Francisco. Within the past decade the shipment of full cargoes of nitrate by steam has become common, and several lines of steamers regularly carry it as a large part of their return cargo. Special steamers have been built to carry Carolina pine to New York and New England, and the shipments¹ of pine lumber and ties from the port of Savannah, Ga., for seven months, April 1—Nov. 7, 1905, show the following results:

¹ *N. Y. Lumber Trade Journal*, Nov. 15, 1905, p. 22.

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	Steam Million ft., B. M.	Sail Million ft., B. M.
Foreign.....	4.74	0.36
Baltimore.....	10.13	4.93
Philadelphia.....	5.26	5.95
New York.....	23.82	15.91
Boston.....	3.16	5.81
Other ports.....	.....	7.40
Total.....	47.11	40.66

In 1901, 1902, and 1903 steamers carried many cargoes of Pacific coast grain to Europe. It was, it is true, done at a loss, but such periods come rather frequently in the shipping industry. It is not being claimed here that the steamer promises immediately to replace the sailer in this trade, but it has already competed for full cargoes. Much more significant is the consolidation of all sailing lines between the two coasts of America, and the sale of these vessels and their replacement by high type steamers. Freight-carrying perfection is illustrated in the new American steamers that were built to replace the sailing vessel line from New York to San Francisco. Some of these vessels can carry 10,000 tons dead weight of freight and 2,500 tons of coal. If the Panama canal were open it is expected that they would make the 5,000-mile voyage from New York to San Francisco at nine knots per hour with 1,000 tons of coal, or one ton of coal for ten tons of freight. With coal at \$3 per ton, the coal cost of a ton of freight carried 5,000 miles would be thirty cents. Small wonder that a man interested in these steamers exclaimed when comparing them with sailers, "Oh, the coal is a bagatelle." Upon the opening of the Panama canal the sailer will probably be entirely

displaced in the Atlantic-Pacific trade by the apparently impossible task of competing around Cape Horn with a steamer passing through the canal and saving more than half of the distance.

The route from New York to Australia was claimed by Lieutenant Maury, the great ocean expert of forty years ago, as the perpetual home and exclusive possession of the sailer. The route is long, the winds are fair, and coaling stations for the rival steamers are scarce and expensive. But when the trade turned against the sailers this stronghold was also invaded. In the year 1896 several lines added steamers to their service, and have maintained them for eleven years and are shipping a large part, indeed the greater part, of the freight by them.

It appears from the statistics of 1904-05 that there has been a pause in the downward course of sail tonnage. During the five years 1899 to 1903, the total decline was not much greater than the annual decline from 1890 to 1899. This halt was due largely to the great boom of 1898 and 1899, which made every kind of vessel profitable in the extreme, and produced the greatest increase of steam shipping ever known. Steam and sail alike were profitable, and were built wherever the equipment was available, and the decline of the sailer was stayed; but the figures for 1904 show that the boom influence was over and that the upward march of steam and the downward march of sail tonnage had begun again.

The multimasted schooner with minimum crew

and steam-hoisting sail and steering gear is spectacular, and has been heralded as the beginning of a renaissance of the sailer. These vessels are not being built very rapidly, and in the steamers there is the counterbalancing improvement of oil-burning engines which require less space and less crew. There is also a mechanical stoker in use and the turbine is apparently coming. There does not appear to be any contrivance in sight to increase the force of sail competition with steam, and increasing disadvantage appears likely.

The extinction of the commercial sailer is not predicted here. For a long period to come there will be some distinctly sailing vessel work, but further decline of tonnage seems evident. She cannot hold her paltry twentieth part. In 1902 the British steam tonnage increased 708,000 tons and the sail tonnage declined 65,000 tons. The traffic upon which the sailing vessel has the strongest hold is some irregular and spasmodic trade, both coasting and foreign, which cannot be organized and handled as line traffic. The beginning of a new trade may be the occasional departure of a sailing vessel. Such a trade is now arising between the Gulf ports of the United States and the La Plata ports. If it grows, a line of steamers will take it over and most of the sailers will be displaced, giving another reduction to sailing tonnage.

There are times when the sailing vessel is desired because the low speed and consequent

long voyage enable the shipper to save storage expenses at one of the termini, but the competition of a seaworthy ship as a mere storage warehouse is not a strong foundation for continued prosperity.

CHAPTER II.

THE ORGANIZATION OF OCEAN CARRYING.

WE naturally think of the traffic of the land as being carried on by this or that railroad, and we think of the railroad as a carrying unit. Further than this the wide prevalence of the steamer lines tends to produce, in the minds of those not directly interested, the idea that upon the ocean also the world's traffic is moved by the steamship line—as it is upon the land by the railroad line. Such an idea of marine uniformity is far from the facts, for the ocean traffic differs profoundly from that upon the land in that it has three distinct types of service. These are the common carriers, the merchant or private carriers, and the charter carriers, the last of single independent ships that are for hire to any bidder.

The sea has a freedom and a cheapness unknown to the large-scale land carriers, and it profoundly affects the organization of the ocean carrying. The most pronounced and far-reaching difference between ocean transportation and land transportation arises from the fact that the ocean is a highway without the efforts of man, and the navigator has but to provide his vehicle. By land, roads must be made even for a pack-train.

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For carrying upon the ocean the completion of the ship is all that is necessary, and if she be a sailer the winds of Providence will drive her into all seas and around the world upon this highway of nations. This fundamental difference in the ocean trade produces many peculiarities unknown upon the land. Less capital is required, and because of the smaller capital that is required upon the ocean we find relatively more individuals and groups of individuals acting independently than we do in the railroad traffic of the land. The single vessel operated as a unit has as much independence as the great line of steamers, and in some respects more independence. Both are alike free to pass over the high seas, to take advantage of the government surveys thereupon, and to enter the harbors that connect with the land, for every port welcomes the greatest possible multitude of ships.

In closer examination of these traffic types the first to be considered is the single vessel that is managed as an independent unit. Such vessels do not attract much attention. They come and go unnoticed in news columns of the public press unless perchance they meet with accident, and the reading and travelling layman does not often have his attention called to them. They do not carry his mail, his baggage or his person. These choice and exacting services are rendered by the aristocrats of the deep, the great lines, whose names and performances and owning companies are known by tens of thousands of people scattered

over all parts of the reading world. The advertisements of these ships, photographs included, reach the inland hamlets of the five continents, and their movements are heralded as news by numerous journals. They are very important. They carry passengers, mail, and much freight with speed, regularity and high cost, and for that reason they do not and cannot do all the ocean's work. The single ship gives a cheaper service and there is therefore a large part of the world's ocean carrying left for it to do and it is done with little comment or public notice.

If every port in the world had a large trade, made up of a wide variety of articles shipped in fairly even quantities throughout the year, there would probably be no vessels operated singly. With such an even and dependable commerce ships should be organized into lines which would handle the traffic in regularly recurring ship-loads. But those conditions of evenness and variety and dependableness do not exist. The nearest approach is in the great commercial ports such as New York, Liverpool, London, Hamburg. In these ports the per cent. of traffic in the line vessels is increasing and that in independent vessels is decreasing. One cannot generalize on world commerce from the world's great ports, for they are few in number and the small ones are very numerous.

During the decades that have made up the railroad era many new lands have been opened to commerce, new products introduced, new

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ports established. In the vast majority of the many hundred of ports upon the world ocean, the bulk of the commerce is limited to a very small variety of articles, often a single article, and that again is often shipped during only part of the year. It is most likely to be a raw product, cheap, and heavy, which must be carried at as low a rate as possible. This then is not work that can be done by the carefully organized line of vessels. This simpler, unorganized, and cheaper service falls to the independent vessel that is for hire, and works as a unit wherever there is work to be done. These vessels are built and owned for just this work. The contract that the lessor and lessee sign when the vessel is hired is called a charter, and the ship is spoken of as being chartered, but if regularly for hire she is commonly called a "tramp." Such vessels carry a large share of the world's trade and are utilized for any freight that may go in ship-load lots. For the carrying of raw materials, and cheap, heavy or bulky goods, the regularity and promptness of the line vessel are not often required. Cheapness is the prime factor. This is true of a long list of commodities lying at the very foundation of modern industry, the life of civilized communities.

As the prime requisite of the charter traffic is cheapness with safety, the combined efforts of the marine architect and the ship-owner have been toward economy in cost of operation, while the managers of lines are often striving for regularity and speed regardless of cost. The eco-

nomics of the tramp steamer fall under three classes:

1. Construction.
2. Navigation.
3. Management.

1. The tramp steamer is built upon a sort of general average model to fit her for as many kinds of service as possible and to go into all oceans and ports. The first object of the designer is to fit her for holding much cargo rather than making high speed. These two diverse objects in design give a great difference in the resulting shape of the ship. The sharp bow and curved ribs of the fast line steamer are replaced in the tramp by a blunt bow, a flat bottom and straight sides, producing in her model a strong resemblance to the cubical form of a squared log. The ship-builders' term "block coefficient of fineness" shows the per cent. that the ship's displacement is of the content of a circumscribing parallelo-pipedon of the following dimensions: length of ship on the load line, draft, and breadth. This coefficient for an ocean greyhound is about sixty-two per cent.; for a nine-knot tramp steamer about eighty per cent. The keel of romance is replaced by a steel bottom as flat as the floor of a warehouse. The keel, as a center of construction, is inside rather than outside in line of the hull, enabling the ship to store freight in every foot of her depth. To prevent the rolling of the vessel, this freighter has bilge keels—fin-like strips of metal riveted to her hull near the blunt angles

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between the bottom and the sides. With her flat bottom she can cross bars to enter the shallow harbors of any ocean and engage in almost any trade.

2. The economies of navigation group themselves around the central question of speed. It is a fact in mechanical engineering that high speed is attained at much greater expenditure of power per unit than that required to traverse the same distance at low speed. In automobile tests a four-horse-power car has made fifteen miles per hour, but seventy horse-power was required for sixty miles per hour. The increase in fuel required is in a similarly high ratio, sometimes approaching in steamships the square of increase in knots per hour. The fast steamer, in addition to narrow form that does not make resistance in passing through the water, must have enormous engines and heavy coal consumption, and larger crew to handle it. These factors mean more expensive construction, less space for freight because of engine room, coal storage, and crew quarters; more expensive operation because of greater wear of machinery, and cost of coal and crew. The advantage side of the account arises from the fact that there are more voyages in a year and consequent greater carrying power, and because of the speed higher freight rates may be charged. But at twenty, twenty-two, or twenty-four knots ~~per hour~~ the cost of this service is much more than traffic in raw materials can stand.

At the other extreme of the mechanical question is the fact that low speeds cost a surprisingly small sum. A steamer could make four knots per hour with modern engines at a very small percentage of the cost required for twenty knots, but she would make such a small number of voyages per year and command such low freights that it, like the high speeds, would not be profitable for freight-carrying. For freight-carrying there is a point of equilibrium in speed above which additional speed costs more in outlay than it adds in income, and below which a lessened speed costs more in loss of earning power than it saves in operating expenses. This point of equilibrium rises with every improvement in engine construction. At present the usual speed for tramp steamers is about nine to ten knots per hour, and it may be confidently expected to increase, some of the newest steamers being already somewhat above it.

These comparisons between the chartered vessels and the liner may be brought out more clearly by the examination of the actual facts of operation of the typical vessels of each class.

The *Baron Eldon* is a British tramp steamer, built at Sunderland (1899) for general work. The gross tonnage is 3,705, net tonnage 2,385, and the crew twenty-nine men, all told. Her dead weight capacity is 6,100 tons and she has actually carried as cargo 5,360 tons of coal on one voyage and on another 5,550 tons of rice. Her coal consumption at nine knots per hour is twenty-two tons

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per day. The *Kaiser Wilhelm II.* and the *Cedric* are two modern ocean giants, and built for the North Atlantic line traffic. The *Cedric* is not a racer, however, and has a displacement of 37,870 tons, will carry 18,400 tons of freight, 3,000 passengers, a crew of 350 and has a coal consumption of 260 tons per day at seventeen knots per hour. The *Kaiser Wilhelm II.*, built to break all records, has a displacement of 26,000 tons, will carry less than 1,000 tons of freight, 1,888 passengers, and has a crew of 600, with a coal consumption of 750 tons per day at twenty-four knots per hour. She could beat the *Cedric* by about two days in a voyage from New York to Liverpool, but to make this gain her crew is nearly doubled and the daily coal consumption nearly trebled. The coal consumed by the *Kaiser Wilhelm II.* in one day would run the *Baron Eldon*, with her large amount of freight for thirty days, and carry her from New York to Liverpool and back to New Orleans. In this comparison the fact should not be overlooked that the *Kaiser Wilhelm II.* carries 1,888 passengers. The *Baron Eldon* carries none, but her gross tonnage of 3,705 tons is a disproportionately large fraction of the *Kaiser's* 19,500.

3. The economies of management are possible because of the lack of dependence upon other ships and because the work is always of a temporary nature. The tramp has no schedule, and is free from the exactions of any particular round of engagements or the disadvantages of

any particular route. She undergoes no unnecessary dallying at ports waiting for sailing day. The coming of passengers, the arrival of mails, long-time contracts to carry certain freight, none of these handicaps of the liner affect her movements. As soon as her special cargo is loaded she is despatched without loss of time. No further time is lost in making unprofitable calls at intermediate ports, and as soon as her destination is reached she is free to unload and seek further employment. No announced schedule requires her to be run, half empty, over a certain route or to lie in port awaiting freight as advertised. She has the freedom of the seas to seek freight in any port in any continent, to take advantage of any local conditions, any single shipment, that may appear to her advantage. If a bad harvest in America cuts off the grain export, the tramp that has been working in the north Atlantic may seek freights at the mouth of the Danube or South Russia or in the Indian Ocean or in the East Indies; wherever freight is offering, there may she go.

As there is no effort to hold patrons and develop a clientele, there is little expensive advertising done and the simplicity of the cargoes requires a minimum of office force.

The business of managing this charter traffic is one of the most characteristic developments of the world's commerce of the present era, the epoch of the ocean cable. Several thousands of ships are scattered over the ocean of the com-

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mercial world, engaged in the traffic that is supplied by hundreds of ports in all climes and all continents, from Greenland to New Zealand. Every day scores or even hundreds of these independent vessels are seeking freight to carry. It is a complicated world puzzle to bring together the ships and the freight so that the one may be most profitably employed, and the other most economically carried. The work is done by the ship-brokers and steamship agents, who receive their pay in the form of a commission or brokerage, a percentage on the transaction. In all ship-owning countries these firms have their headquarters, and each one has agents and "correspondents" in many other countries, so that among them all they make a complicated web that reaches to all cities of commercial importance. The whole is so bound together by telegraph and cable that, like a spider's web, if touched by anything of importance at any point, the whole structure vibrates with the news. The departure of a steamer loaded with sugar from a small port in Java, or ore from Chile, is reported by telegraph in Europe and America. There is practically a complete record of all vessel movements published daily by Lloyd's, the great British association of underwriters. The men engaged in world commerce have, through their world telegraph, a world community of information.

The method of securing cargoes for ships, and ships for cargoes, is best described by the relation of some common incidents of everyday oc-

currence. A Liverpool ship-owner had a steamer in the Mediterranean loaded with jute, which she was carrying from Calcutta to Dundee. The owner desired another cargo for the steamer at the end of the voyage. Knowing there was nothing in Dundee he wrote to his agent in Newcastle, and himself made inquiries among the shippers of Liverpool. The Newcastle man suggested a cargo of coal to Hamburg, but this the owner declined, and sought the aid of his correspondents in Dumbarton, but the iron trade of Dumbarton was not promising. Meanwhile the days were passing, the vessel had reached Dundee and there was nothing provided for her. The Liverpool man was himself the correspondent of a London firm of ship-brokers, who telegraphed him at this juncture that they had offers of a shipment of German coke to go from Rotterdam to Santa Rosalie, lower California, and of another of Cardiff coal for Buenos Ayres. The first the ship-owner declined, as being only suitable for a sailing vessel, and because of news from across the Atlantic he allowed the second to go to a steamer then lying at Antwerp. Three days before this he had cabled to his New York correspondent a description of the steamer, and offering his services to carry grain to the United Kingdom at a certain rate and saying that she could load after a certain date or between certain dates. As New York freight was dull, the firm in that city telephoned their Boston and Philadelphia agencies. At the same time

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a Chicago grain-exporter decided to export 150,000 bushels of corn, and telegraphed to his agents in New York and Philadelphia to secure offers of transportation. In the shipping exchanges of those cities the representatives of the Chicago exporter and the Liverpool ship-owner bargained face to face. Offers were, however, made at the same rate by the New York representative of the owner of a ship then off Rio Janeiro with a cargo of Chilean nitrate bound for New York, and also by a Philadelphia broker who sought future employment for a vessel then in the Red Sea with a cargo of Java sugar for Philadelphia. The wary broker held aloof for a few hours in the effort to beat down the rate. The Liverpool owner was informed of this competition, and still having nothing for his steamer he cabled that he would charter his ship for three pence (6 cents) less per ton than he had offered, or for the same rate he would take freight to continental ports as far as Copenhagen. He added to his cablegram the word "range," which means in cable code that he would send the ship to the Delaware Bay with the understanding that she might be ordered to New York, Philadelphia, Baltimore, or Norfolk to load. This offer secured the freight, for the representatives of the sugar ship and the nitrate ship, having more time at their disposal, preferred to take chances rather than cut rates. The steamer, which, pending negotiations, had proceeded to Newcastle, coaled and anchored, departed thence in ballast for

the Delaware. Meanwhile the Chicago exporter found that railroad conditions made Norfolk the most convenient port to deliver his corn at the appointed time. When the steamer reached the Delaware Breakwater (just inside Cape Henlopen) the captain received telegraphic instructions to go to Norfolk. There he loaded a full cargo of corn and, as the final destination of the corn was still undecided, he sailed to the Channel port of Falmouth for orders. Upon being sighted there he was instructed by signal to proceed to Copenhagen, where the corn was discharged and the vessel was ready for another contract which the agents had been trying to arrange since the day they learned of the final destination of the corn cargo.

That operation is typical of scores that are enacted daily. In almost every exchange of ideas connected therewith, the ocean cable or land telegraph or telephone plays an important part. The manager of a merchant fleet may control his ships almost as perfectly from his office in London, Liverpool, Hamburg, or New York as does a chess-player the men on a board before him. There are signal stations over the greater part of the world where the captain of a ship can receive cabled instructions from the central office. It is common to send vessels to sea with the final destination unknown, the captain reporting at some prearranged signal station where he receives further instructions. This is also true with vessels without cargo and

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seeking it. Nearly all of the grain ships going from the Pacific coast of the United States to the United Kingdom sail to Cork, southwest Ireland, "for orders" announcing the final destination. Whether the cargo is to be finally consigned to a port in Britain or any one of four or five continental countries is decided by the grain shipper according to the latest market conditions. Vessels bound for northwest Europe, via Suez, often receive final orders at Gibraltar or Falmouth or Lizard's Point. If coming up the south Atlantic, orders are received at Cape Verde or Madeira Islands. A typical case is that of a vessel which, lying idle at Singapore, was ordered to proceed for orders to a signal station in Lower Burmah. While *en route* her owner in London sought cargo. By having the vessel go to Lower Burmah he had the possibility of getting a cargo of rice from Rangoon, or proceeding to Calcutta if cargo were offered there. By ordering his ships from station to station the owner or manager on the shores of the north Atlantic keeps in touch with his scattered fleet in the Indian Ocean, eastern Asia, Australia, or the East Indies almost as easily as if they were a mile or two away in the harbor of his own city. The recent equipment of oil barges with wireless telegraph and the steady improvement in that means of communication suggest the arrival of the day when the owner of plebeian ships may under normal conditions be in constant communication with his ships in all places.

The tramp vessel has earned the name by her

absolute freedom of restraint to particular localities, routes, or trades. In the constant search for freight she may traverse every sea, and in the course of years often circumnavigates the globe many times. This roving tendency is increased by the fact that so much of the work done by these vessels is of a seasonable nature, a certain region shipping its product at a certain time only. California wheat is ready to ship at a different season from that of Argentine Republic or India. The corn of the Mississippi Valley is ready to ship later than the wheat from the same region. There is a different sugar season from Hawaii, Peru, Java, and Germany. There is a cotton season and a nitrate season, the latter being decided by the greater demand for nitrate fertilizers in the spring planting of the northern hemisphere.

The seasonal nature of the traffic adds to the complexity of the business of ship management. The ship-owner has to keep in mind not only the conditions of the contract he is making, but also the prospects ahead of the ship when she must again seek cargo. It is like a game of chess, in that each move must be made with regard to succeeding moves. The ship-owner is glad to arrange a voyage that will release the ship in a good location to secure freight, and loath to send her to regions that are devoid of freight, and rates are made accordingly. A cargo of lumber would be taken at a lower rate to New Caledonia, with its export of ores, than to some coral isle in the mid-Pacific with no export but

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a few cocoanuts. Thus the possibilities of two or even three voyages enter into the decision of the rates for one. The manager of vessels that happened to be in India or Java or South America would give, under usual conditions, a relatively more favorable rate for a full cargo to New York than to London because he is reasonably sure of getting a profitable freight cargo away from an American port, and an unprofitable coal or ballast cargo away from Great Britain. As a result of judgments of this character steamers are sometimes started upon a chain of voyages requiring months to complete. For example, a man in London may have an opportunity to secure a cargo of goods from Liverpool to China, and he takes it because he thinks that by the time his ship has reached China he can arrange for a cargo of Java sugar to New York or Philadelphia, and from that point he can get grain back to Liverpool or London; or the same man might send out his ship from London with a cargo to Australia, because she could there get a cargo of coal and take it over to Chile in season to secure a cargo of nitrate for a European or American port.

The tendency of the tramp steamer to rove is intensified by the fact that none of the world's greatest trade routes has equal amounts of freight moving along in both directions. North America sends across the north Atlantic more than twice as many tons of freight as Europe sends back. China and Japan import twice or more than twice as much (in bulk) as they export, and the Dutch

East Indies, the west coast of South America, and the Pacific coast of the United States all export more than they import. As a consequence the tramp vessel cannot expect to secure cargo both ways and regularly run back and forth on the same route. Ordinarily the tramp must expect, if carrying a profitable cargo, to pass over a certain route in a certain direction, the direction of heaviest freight movement. The ideal of the manager is, therefore, to have his ship always discharge one cargo at the profitable or freight surplus end of another trade route. This is clearly impossible. The world's freight cannot be carried without sending vessels to places where there is no return cargo. The fewer the voyages of this character, the greater is the profit and skill of the manager. But voyages without cargo must be taken even under the most careful management.

Lacking cargo the vessel must take ballast to steady her, and for this cause thousands of tons of useless sand, earth, stone, and water are carried from country to country. But rather than take ballast for nothing the tramp vessel can afford to carry bulky cargo very cheaply; so it happens that coal and sometimes ores are carried practically as ballast substitutes, and at or even less than the actual cost of running the ship. The voyage must be made to secure profitable cargo at the other end, and the cheap coal freight is that much clear gain. Ship-owners are sometimes compelled to send vessels from England

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to the Pacific coast of the United States with no choice but to carry sand or coal, and with plenty of competition for the coal. Under these conditions the product of Welsh mines has been carried from Cardiff to San Francisco for eight shillings a ton, while the return cargo of wheat paid thirty-five or forty, or fifty or more shillings a ton, and gave the ship-owner his profit.

The distribution of coal by ocean carriage may, in most cases, be considered a by-product of the charter traffic. There are some cases where coal is carried short distances in lines of vessels especially built for the purpose, but this represents but a small proportion of the total coal carriage. The consideration of the by-product phase of the carrying trade shows that nations are in the best position to export their products cheaply when they import a greater quantity of merchandise than they export, for there is then competition among the ship-owners to get the outgoing freight. For this reason the greatest coal exporter is Great Britain, the greatest importer of bulky freight. Next, in respect of the wide distribution of this product, come Australia and Japan, both fourth-rate coal producers, but countries whose imports are more bulky though less valuable than their exports. These countries are able to export coal widely, yet in none of them is coal so abundant or cheap as in the United States. The United States has not become an important coal exporter, except to adjacent countries, because the heavy exports

of raw materials have employed more shipping than our imports required, so vessels come to us in ballast, and a ship that carries coal from an American port must usually return in ballast, making it necessary for the coal freight to pay for both voyages. This cannot be done, because the somewhat more expensive British coal is carried at very low rates as ballast cargo and undersells the American in most foreign ports. The American export of coal is limited almost entirely to Canada and Mexico and to the West Indies, whence we are importing iron ore, sugar, and woods, all of them bulky articles, and the outgoing vessels carry the coal. In contrast to this, British coal goes more than half way around the world.

The tramp is cheap, but slow and uncertain; she suffices for raw materials, but for a large share of the ocean work she cannot compete. The exchanges of articles of high value per ton require, because of that value, the more dependable and expensive service of the line vessel.

The regular service in its turn stimulates trade by its regularity, and is a necessary part of the commerce of highly civilized states. Passengers cannot make their arrangements to sail on vessels whose time of departure is uncertain. Like the mails, the passenger traffic requires a definite schedule of sailings, which must be made out months in advance, and announcement made of the day and hour of sailing. Certain classes of valuable freight are scarcely less exacting, and

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there are many lines of vessels carrying freight only that are made to follow an advertised schedule almost as punctually as do the passenger lines.

The distinction between line traffic and charter traffic is in some cases hard to point out. The difference between the work of the best transatlantic liners and that of a typical tramp steamer or sailing vessel is unmistakable, but there is a point where the two kinds of traffic approach each other closely and, from the standpoint of the vessel, there are many cases in which the distinction cannot be drawn at all, because many vessels pass repeatedly from one service to the other. This transition service is best explained by describing the methods of operating some of the cheaper all-freight lines.

With these, as all other lines, the amount of freight to be carried fluctuates, and the company will often do it all with chartered vessels or own only enough vessels to attend to a sure minimum of business, and when temporary increase of traffic comes the managers turn to the ship market for additional vessels to be taken on time charter, and operated in the line service so long as it seems expedient to do so. When trade decreases the charters of these vessels are allowed to lapse and the fleet is reduced. In this work steamers are often chartered for a year or even two years if rates promise, in the opinion of the charterer, to be steadily rising. Vessels are also taken into the line service for only a single voyage, particularly

where there is much more traffic one way than the other. It is common for some of the lines regularly carrying freight from New York to Australia and the Orient to charter vessels for the out voyage only. On these routes returning freight is so scarce that even the vessels owned by the companies may become tramps or are "put upon the berth" at the end of the voyage, and work their way back to New York by whatever indirect route offers the best chance of earning freights. It is a common, almost a regular, occurrence for some of the companies operating steamship lines in these trades to announce the date of the steamer's sailing when they cannot give her name, because they have not yet chartered her. Any good tramp steamer may be secured for the assignment at the latest available date.

This elasticity of service is not possible with the lines having passenger service, specialized freight traffic, and vessels especially adapted to the trade and built for it. A fleet of such vessels cannot be enlarged by chartering at will.

Despite the traffic of uncertain qualities there is a vast line traffic having pronounced differences from the charter traffic. From the standpoint of traffic these differences may be summarized in the two words regularity and speed, or in two others, increased efficiency.

The efficiency of the line of steamers is only obtained by incurring certain expenses that are not necessary if the vessel is working independ-

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ently and carrying special cargoes. These expenses may be classed under the heads: 1. Maintenance. 2. Management and advertising. 3. Costly construction. 4. Speed.

1. The most important single factor about line service, the schedule and its maintenance, is one of the great cares and costs of the managers. When a vessel is scheduled to sail on a certain date, her time may be up before she is fully loaded, or she may be loaded or ready to load and have to wait till the appointed time. Both are expensive to the owner. The making of a schedule must provide for the worst conditions of weather, and then in good weather the vessels may lie idle in their expensive docks. In keeping up a regular schedule it may be necessary to enter ports when the freights do not warrant the delay and the cost.

In contrast to this is the freedom of the chartered vessel. She takes things as they come, she has made no promises, she sails as soon as she is ready, can be delayed without any further inconvenience than the loss of time, and proceeds only to such ports as best suit the particular conditions of a particular voyage.

Accidents fall with cumulative force upon a steamship line because of the effect upon the schedule. In addition to the direct loss due to the accident, the future sailings and service are often demoralized, and the fulfilment of outstanding contracts becomes a matter of great difficulty and financial loss rather than profit. If a

ship is disabled a few days before time for putting to sea, her place must be filled, and it is difficult and often costly to secure a good steamer in an emergency or even to secure accommodation elsewhere for the passengers and freight that have been engaged. Such necessary shiftings may make a month or more of losses where high profits were expected.

2. Line traffic, particularly when an object is made of carrying passengers, requires a large amount of advertising to catch and keep the attention of the would-be traveller and to create the desire for travel. Allied to the advertising is the elaborate arrangement of offices and agencies in many cities for the selling of tickets and securing of freight. At the port of sailing, the office of the steamship agents managing a high-grade steamship line requires an efficient force of clerks. The staff must be organized on the basis of its ability to manage the work at the times of greatest rush—sailing day—although it may be partly idle in the intervals.

To handle the line traffic in freight requires more clerical work and more warehouse room than the same amount of charter traffic, because of the greater number of shipments to be received, invoiced, cared for till loading time, placed safely in the hold of the ship and finally assembled at the point of discharging cargo. Such cargo is often spread out in separate lots over a large area of quay or warehouse space. The bulk shipment of grain or other uniform charter cargo

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can be discharged more easily into coasting or river craft alongside or it may be thrown in great heaps, so that it occupies less warehouse space than any other kind of cargo.

3. Many kinds of line traffic require special types of ship construction. First among these is the passenger service, which is provided for wherever the travel is sufficient to give passengers for a part of each year. Human freight is more exacting than inanimate cargo, and, while the business is very profitable, it adds greatly to the cost of construction of the steamer, increases the crew, and decreases the freight space.

Many kinds of freight require nearly as much special construction as do passengers. This statement applies especially to perishable goods requiring refrigeration. There is a large traffic in frozen meat between Great Britain and the southern hemisphere. The frozen carcasses are taken from a cold-storage warehouse in Argentina or Australasia and carried to Europe in the ship's freezing chambers. Another division of the refrigerator traffic is the larger and rapidly growing use of chambers where the freight is chilled, but not frozen. In this manner is carried the American fresh meat en route to Europe, and the most of the ocean trade in fruits and dairy produce. Some other forms of special construction are found in ships prepared for carrying live cattle, and in tank steamers for the carriage of oil in bulk, and the fruit steamers that carry oranges and bananas from Caribbean and other tropical countries.

4. High speed is not a necessary part of all line traffic, but it is an essential factor and a large element of the cost in those lines carrying passengers and mail, and in some freight lines. The increased consumption of coal has been referred to in the discussion of charter traffic. High speed requires, along with greater coal cost, greater crew to handle the coal, large bunkers and machinery space, and consequent lessened freight space. Machinery running at high speed wears out sooner and requires more repairing per mile than when operated at lower speed. The fast vessel is also more liable than a slow one to accidents at sea, especially collisions.

As a compensation for the various costs the line steamer has several strong advantages over the chartered vessel.

1. It can charge higher rates of freight on some goods.
2. It can secure more advantageous loads through mixing cargo.
3. It wins patrons and develops trade through acquaintance.

1. The liner monopolizes the passenger traffic, the carriage of mails, and because of its speed or regularity, or both, it can charge a higher freight rate for much valuable express cargo in the transportation of which time is an important factor.

2. In the carriage of ordinary freight the liner has an advantage in its ability to secure mixed cargo, and stow into a given space more tons of freight than can usually be secured by the special cargo vessel, which ordinarily carries a cargo of one article only.

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The question of the relation of the bulk of cargo to its weight is a very important one for the ocean carrier. The ship has a certain capacity in dead weight tons, and an absolutely inelastic amount of cubic space into which those tons must be stowed. It is important that both space capacity and weight capacity be utilized, and to do this there should be some heavy cargo to give the weight and some light to fill the space. A full cargo of either is unsatisfactory.

The ocean carrier solves the problem by basing his freight rate on two different units, one of weight and one of cubic contents. Both are called tons, the weight ton and the measurement ton, the latter consisting of forty cubic feet. The ship-owner exercises his discretion as to whether he receives freight on the weight or measurement basis, and, of course, uses the one most favorable to himself. The measurement ton happens to have its particular size because a weight ton of wheat occupies about forty cubic feet, and as wheat has long been a staple, and often the greatest staple, of ocean commerce, ship-owners came to think of their vessels in terms of their wheat-carrying capacity, and this grain became the norm for measuring other commodities. Freight goes by weight or measure, at the discretion of the carrier. Hence a shipping company's report of the number of tons of freight carried gives neither an accurate measure of weight nor cubic content of the traffic, because it is usually composed of unknown quantities of both kinds.

A mixed cargo will give a greater cargo tonnage than a full cargo of either kind, because all vessels will contain more heavy cargo than they can float, and they will float more light cargo than their space can contain. A vessel that can carry 1,000 tons dead weight would have four-fifths of her space empty when carrying a full cargo of iron. On the other extreme a full cargo of wagons or wooden manufactures would not weigh more than 300 or 400 tons. In one case the ship is wasting space, in the other carrying power; but with 700 tons of iron or steel in the bottom of the hold there is still space for possibly 700 tons of light measured cargo, say, wagons and furniture—1,400 freight tons in all. The possibility of making such combinations is constantly before the managers of line vessels, and freight is sought and rates are made with such arrangements in view. If 1,400 freight tons of wagons and steel rails can be put into the vessel that can only carry 1,000 tons of rails or wagons alone, the agents can well afford to take both articles at a rate somewhat lower than could have been offered for a full cargo of either, and yet have greater returns than would have come from a full cargo of a single commodity at the full rate—1,000 tons at \$5 per ton equals \$5,000 and 1,400 tons at \$4 per ton equals \$5,600.

The steamer is also much safer to navigate with a full dead weight rather than a light measurement load.

3. The line has also the advantage of getting

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regular patrons, of making contracts for long periods and of reaping the advantage of the increased trade that its regularity fosters, but it must also maintain its reputation and preserve that regularity of performance during periods of depression and loss.

CHAPTER III.

THE LEADING ROUTES OF OCEAN COMMERCE.

OF vessel tracks upon the world ocean there is an innumerable and increasing multitude. Any one of several hundred ports may from time to time be visited by a vessel from any other of these ports. This movement over a certain track may be isolate, occasional, or regular. Even the regular trade routes amount to hundreds, passing in all directions across all oceans between the frigid zones, and some routes invade even a portion to the Arctic Ocean.

The routes of the ocean, like those of the land, consist of trunk lines and branches or feeders, which, leaving the main ocean thoroughfares, reach out to the islands or to the ports of the more isolated arms, gulfs, and bays that indent the continents. These trunk routes comprise the real circulatory system through which passes the greater part of the commerce of all nations. The advantage of location possessed by the trunk routes causes them to draw to themselves through their feeders the great majority of vessels traversing the ocean.

The number of ocean routes has been more than doubled during the latter half of the nineteenth

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century by the use of the steamer. This newer type of vessel rarely followed the older route that had sufficed when wind and sail were the sole dependence of the navigator. The sailing vessel must depend upon winds, weather, currents, and tides, and in order to take advantage of these factors it is often necessary to make detours to catch favorable conditions or to avoid the danger of being blown upon the shore. The steamer, with greater power of guidance and always desiring to save time and fuel, goes as nearly as possible in straight lines. Hence the two types of vessels rarely follow the same track, and there are, for a large part of the world's oceans, two distinct sets of routes: those followed by steamers and those followed by sailers.

The location of sailing routes differs from that of steamer routes because of the different methods of navigation. With the steamer every mile covered costs a certain coal consumption, so that the steamer routes, reckoned in miles, are almost always the most direct routes possible, deviations only being made to avoid rocks, ice, thick fog, or very stormy locations. The steam navigator thinks of his voyage in miles, because distance is the chief factor, but the sailing captain reckons his voyage by days, because the varying winds may take his ship one mile or two hundred miles in a day; or again, head-winds may make it necessary to "tack," or sail from side to side, so that two hundred miles of sailing means but one hundred miles of progress. Thus it comes

about that sailing routes are decided not by the shortest lines, but by wind and other conditions over the seas traversed.

The force and regularity of the wind differ greatly in different parts of the ocean, and to avoid regions of calm or low winds or head-winds, the sailing routes often make wide detours in mid-ocean, and owing to the peculiarities of a sailing ship these vessels rarely go to and fro between two given points by the same route, because the wind that speeds the departing retards the returning vessel. Further than this, the winds in many parts of the world change with the seasons, and the sailing routes of winter are different from those of summer. Owing to the lessened certainty of location and lack of freedom along coasts, sailing routes do not lend themselves so easily as steamer routes to the development in trunk routes and branches. Where such classification is possible it is decided more by wind influence than by common destination.

In this chapter there will be no attempt to describe or enumerate all the routes. For an economic discussion many routes which, from the standpoint of the navigator, are separate, may be grouped under one heading and treated as a unit, as in commercial service they really are.

Western Europe and eastern North America are the greatest manufacturing centres for the rest of the world, and are consequently the starting point or the ending point for the leading ocean routes, because the great basis of international

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trade is the exchange between the regions producing manufactures and those producing raw materials and food. Since the leading commercial countries of Europe are on, or adjacent to, the English Channel, that body of water may, in a partly figurative but almost literal sense, be considered as the origin of European routes, and similarly New York Bay of the American routes.

As North America is also the greatest exporter of food and of raw materials to Europe, the most important of the ocean trunk routes connects eastern North America with northwestern Europe. On this great thoroughfare is regularly employed more than a sixth of the world's ocean shipping, including the largest and fastest ships afloat.

For convenience we will call this the North Atlantic trunk route. It is not strictly accurate to call this a route, for it is a complex group of routes crossing and paralleling each other and converging to several foci, but they are surprisingly close together in mid-ocean. The Liverpool Steamship Owners' Association declared in an address to the British Board of Trade that "all vessels crossing the Atlantic to this country [Great Britain] from ports in North America take practically the same route from 60 W. longitude." This comes about because of the advantage of following the great-circle route, which, curving to the northward, makes all vessels, whether from Halifax, New Orleans, or Vera Cruz, follow close to the northeastward-trending coast of North America to the Grand

Banks off Newfoundland before starting to cross the ocean. During the spring and summer months a somewhat more southerly track is followed, owing to the floating ice, and for this reason the St. Lawrence steamers are compelled to pass to the south of Newfoundland. During the ice-free part of the year, from September to April, the compact sheaf of routes is somewhat scattered, and for a short time St. Lawrence steamers pass to the north of Newfoundland with a considerable saving in distance.

These northern or great-circle routes are so much shorter than the direct following of the parallels of latitude, that the route from Liverpool direct to Greytown, Nicaragua, is only 323 miles, one day's moderate steaming, shorter than the route by way of New York. Norfolk is a common coaling port for vessels passing from the Gulf of Mexico to Europe.

The sailing tracks for this route show how thoroughly this type of transport depends upon the whims of the air. It was found in the old packet days that the average journey directly westward to New York was, in time, fifty per cent. longer than the journey eastward, and that a long southern detour on the western voyages was sometimes a benefit from the point of time. The explanation of this, as of all the other facts of sailing route location, depends upon an understanding of the main facts of the world's wind circulation, which should therefore be briefly stated here.

in a striking manner the effects of the prevailing

fore be briefly stated here.

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The combined influence of the motion of the earth and the different temperatures in different latitudes produce a general wind system upon the surface of the earth, and with greater regularity upon the oceans than upon land. This wind system is studied by the sailing captain as carefully as the coal question is by the owner of a line of steamers. The winds are most regular and reliable in the hot latitudes. The part of the torrid zone receiving the most direct rays of the sun gets hottest, and is a region of calms, because the highly heated air is rising. This rising air of the zone of calms is replaced by the air that blows in from north and south, producing the trade winds which sweep regularly over the torrid zone and are deflected from north and south to northeast and southeast winds by the earth's rotation toward the east. In some regions, particularly off the coast of Spain, the trade winds extend to a considerable distance beyond the tropic, but this is unusual. Owing to the apparent northward and southward motion of the sun, the zones of the trade winds and doldrums also move several degrees north each summer and south each winter. In both the temperate zones the prevailing winds are westerly, though not so constant as the trade winds, being much more liable to disturbance by cyclonic storms, during which in the course of a day or two the wind blows from all points of the compass in turn.

The sailing routes of the Atlantic illustrate in a striking manner the effects of the prevailing

winds. Between the Northern States and the English Channel the sailing vessel goes before the westerly wind and follows closely upon the steamer route. Returning there are two routes, a southern and a northern. The northern faces the west wind and involves much tacking back and forth. The southern route, going southwest to avoid the westerly winds, gets into the trades, passes along the coast of Spain, south of the Azores and Bermudas, and crossing in the latitude of Havana comes up northwestwardly to the middle Atlantic States. If the destination is the Gulf of Mexico, the recommended track is still farther south, passing into the Caribbean near Barbados and out through the Yucatan Channel into the Gulf. In the winter this southern route is made even longer, because the vessel must go farther south to reach the trade winds. Even the vessel bound for New York may then go 150 to 200 miles south of the tropic of Cancer. At this season the seas east and northeast of Newfoundland are more favorable to ships because free from ice. The icebergs and ice floes are released from their frozen moorings by the summer thawing and float about the ocean during summer and autumn. The solid freezing of winter holds the next ice crop in place until the succeeding June. During this season vessels returning from north Europe are recommended to follow the northern route. From the North Sea they go around Scotland; those from the Channel steer northwest from the Scilly Isles or southwestern Ireland, till lati-

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tude 54 deg. is reached, then from mid-ocean a southwesterly route is followed along the coasts of Newfoundland and Nova Scotia. This northern detour is taken to avoid the strong head-winds and storms which often rage during this season with great fury between 45 and 50 deg. north.

The route next in importance to the North Atlantic is the Mediterranean Asiatic trunk route, passing from the Straits of Gibraltar around the continent of Asia to Japan. This route, the great thoroughfare between the East and the West, has many feeders east of Gibraltar, and double termini in the Atlantic, one in the region of the English Channel, one in America—chiefly New York, but partly also in the Gulf of Mexico. As it skirts the coast of Eurasia it is fed by a branch from every bay that indents that great land mass, and by other branches from Africa, the East Indies, and Australasia. Important contributions come from Barcelona in Spain, Marseilles in France, Genoa and Naples in western Italy, Venice and Trieste on the Adriatic, Smyrna and Piræus on the Ægean, Constantinople, Odessa, and Batum on the Black Sea. At Alexandria the commerce of Egypt is received and at Aden a part of the trade of the Persian Gulf, East Africa, and Bombay, the main line going on to Ceylon and Singapore. At Colombo vessels for Calcutta, Madras, and Burmah turn northward into the Bay of Bengal and the Australian mail steamers turn southward across the Indian Ocean; at Singapore the route, rounding the corner of

Asia, sends a branch to Java and on to Torres Strait and east Australia, receives the traffic from Siam, Tonquin, the adjacent East Indian islands and some from Manila. The main route passes on to Hong Kong, Shanghai, and Yokohama, Shanghai being the branching-off point for the trade of Vladivostok, Port Arthur, Tien-tsin and other ports in North China and Korea. Latterly it is even extended from Japan to Puget Sound and San Francisco, with more services promised for the Pacific coast of America.

This great route from the West to the East is the creation of the Suez Canal. Before the opening of that gateway of the seas it was entirely unprofitable for steamers to engage in the trade between the Orient and the Atlantic. The trade was then comparatively small, and the greater part of the present traffic is the creation of the new route, which is now as absolutely monopolized by them.

The rocks, reefs, narrow passages, calms, and fitful winds of the Red Sea combine with tonnage and tolls at Suez and poor winds in the Mediterranean to absolutely block this route to sailing vessel traffic, which before the coming of the canal monopolized practically all of the trade. In those days Batavia occupied Singapore's lucky place and the captain bid good-bye to the Orient at the straits of Sunda.

The Good Hope route is not such a coasting route, nor is it so well supplied with feeders. The peculiar shape of the west African coast,

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and the scattering character of its commerce, have brought about a duplication of steam routes in the Atlantic west of Africa. The coasting and local route follows the coast settlement by settlement, from Morocco to German Angola and the Cape. The more important route, the South African route, sweeps boldly around the continent to Cape Town with occasional stopping of ships at the Cape Verde Islands for coal. At Cape Verde, or to the south of it, two branches of it unite to form the route, one connecting with the English Channel, one with New York Bay. East of the Cape of Good Hope the vessels in the African trade stop at the British South African ports of Port Elizabeth and East London, most of them continuing to Delagoa Bay, but rarely farther. A few pass up the east coast of Africa. African ports are, however, the destination of but a part, less than half, of the vessels traversing the South African trunk route. The others go directly to Australia and New Zealand, often without touching Cape Town. From the United States to Australia the Suez Canal route is practically as long as the Good Hope route, and all the vessels naturally follow the cheaper and more open route around the continent. From England the saving by canal is about a thousand miles, not enough to make its use profitable for any but fast passenger and mail ships. The purely freight lines from Europe use the South African trunk route. The more important lines steer directly from South Africa to Adelaide,

Melbourne, and Sydney, and sometimes go on to Brisbane. Less important ones run directly to Freemantle, West Australia, to New Zealand, or to New Zealand via Melbourne or Hobart (Tasmania).

The Good Hope route divides with the Cape Horn route the honors of being the heaviest factor in the world's sailing traffic. They are typical sailing tracks. The inbound and outbound tracks past the Cape differ, and there are also the seasonal variations, but these sailing tracks are more deserving of the title of a trunk route than any others in the world. The equatorial section of the outbound route is followed by all vessels from both Europe and America destined to the coasts of five continents bordering upon the Pacific and Indian oceans. The inbound routes to Europe and America are not at any time united so completely, although they have some of their divisions in common.

The outgoing routes converge in the equatorial section of the Atlantic because they cannot safely pass Cape St. Roque without going with the trade wind that blows from the Canaries directly toward the point of South America. European vessels have a direct route from the English Channel until they reach the trade winds off the coast of Spain or Morocco, before which they easily ride.

The vessels from the Atlantic coast of the United States would be delayed by the trade wind if they sailed directly toward Brazil. The quicker way for them to reach Cape St. Roque is to go

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with the west wind eastwardly across the Atlantic toward the Azores, then turn south and go with the trade wind. This route joins the European near the equator. From this point southward to the tropic of Capricorn vessels bound for the Indian Ocean proceed directly south to avoid the southeast trade and catch the prevailing west winds, which carry them across the south Atlantic to Cape Town and into the Indian Ocean.

The inbound routes of the Atlantic are everywhere in different locations from the outbound. In returning from the Indian Ocean the southern west winds are a hindrance and the navigator keeps as close to the Cape of Good Hope as possible, and sails northwest into the trade winds and on toward the equator. The American and European routes from the Indian Ocean diverge from the Cape; the first-named going almost directly to New York, thus crossing the northeast trade at a right angle, and having nearly the same angle to the Gulf Stream and the prevailing westerly winds north of Bermudas. The European routes in crossing the northeast trades are driven so far to the west that they enter the zone of westerly winds in the longitude of eastern Brazil and Greenland, and, passing to the west of the Azores, approach their destination from a westerly direction.

The Good Hope route gathers to itself almost the whole sail traffic of the Indian Ocean. These routes have a distribution altogether different from that occurring in other oceans, because the

wind system of the northern half of the Indian Ocean is unlike that of the other oceans, due to the disturbing influence of the continent of Asia. This enormous and largely arid land mass lies just to the north of the trade wind zone, and in summer it becomes so much hotter than the ocean to the south of it that the air rising from over the land draws toward the land an enormous southwest sea-breeze blowing continuously from the equator toward Asia—directly reversing the trade wind during the summer months. These winds, bearing the name of monsoons, occupy the latitude of the northern trades, and by their force sweep across the greater part of the usual zone of calms, and in the season of the northern summer they exert some influence several degrees south of the equator. The southern part of the Indian Ocean has a normal trade wind at all seasons and the southern part has in the winter months.

The sailing routes of the Indian Ocean, the creation of these winds, unlike those of the Atlantic and Pacific, have somewhat the form of trunk lines and branches with separate systems inbound and outbound at the point of Africa. The inbound trunk follows the southern margin of the ocean from west to east. On this thoroughfare the navigator takes advantage of the steady west wind as long as possible before turning northward to the ports of Africa, Asia, or the East Indies. Australian vessels complete the voyage before the west wind. Vessels turning toward Asia or the Sunda Islands can sail by the trade winds

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directly north to the vicinity of the equator. Here the course, for points beyond the equator, must change to take advantage of the changing monsoons. The summer route to Bombay passes north close to the east coast of Madagascar, and goes with the southwest monsoon across the Arabian Sea. The winter route, avoiding the full force of the winter (northeast) monsoon, goes northward toward Ceylon and then turning northwest follows the west coast of India at right angles to the wind. The return routes for both seasons follow closely upon the latter route as far as the equator, and then, like all the returning routes of the Indian Ocean, go west-southwest across the southeast trade wind to the point of Africa, avoiding the westerly winds as much as possible. The routes to and from Calcutta show the results of exactly the same principles that entered into the location of the Bombay routes. They do not cover so wide an area, because the Bay of Bengal is so much narrower than the Arabian Sea. Sunda Strait, the sailors' gateway to the East Indies, the Philippines, and the coast of east Asia, is below the monsoon zone, and has but one approach, directly from the south, and one outbound route, a direct line to the point of Africa.

The South American trunk route sweeps around the two longer sides of that continent from Cape St. Roque to Panama and on up the coast of America to British Columbia. Like the other trunk routes it is fed from two sources, Atlantic

North America and Europe, the two parent streams uniting at Cape St. Roque. The greatest sources of traffic for this route in eastern South America are the Brazilian coffee from Rio Janeiro and Santos, and the grain and animal products of the La Plata ports. Many vessels, devoted only to the trade of the west coast, call at east coast ports only for coal, but discharge and receive cargo at many ports upon the west coast between Valdivia in southern Chile and Guayaquil, Ecuador. A few steamers continue this semi-coasting trade along the coast of western Colombia, Central America, Mexico, and the United States to San Francisco and Puget Sound. Other steamers round the continent of South America, but have no South American trade. Since 1901 a number of steamers have sailed from the Pacific ports of North America for European ports without doing a coasting trade *en route*, but all steamers in this trade are an innovation in a trade that has belonged exclusively to the sailer.

At the Straits of Magellan the traffic of this route is swelled by vessels in the New Zealand trade, particularly those returning loaded toward Europe. With this exception, the South American trunk does not in its steam traffic receive long branches or feeders as does the Mediterranean-Asiatic in rounding the continent of Asia. The difference is more apparent than real. The Asiatic route skirts the heads of peninsulas, and is often hundreds of miles from the ports lying at the heads of the seas indenting the coast.

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The branch routes to these ports are evident. The coast of South America is so even that any steamer passing around the continent passes comparatively near to all the ports. The real effect of branches is preserved by the division of the territory among the steamer lines. Some call at the ports of one section of the coast and have no freight connection whatever with other districts. Some lines of west-coast-of-South-America steamers are as separate from the other traffic of the South American trunk as the Calcutta or Zanzibar steamers are separate from the remaining traffic of the Mediterranean-Asiatic trunk.

The sailing contingent on the South American trunk route keep safely out of sight of the steamer that hugs the coast to save miles. While the steamer creeps through the squally and tortuous Straits of Magellan the sailer puts in another thousand miles in enduring the buffetings of the western fury off Cape Horn. So steady and so strong is this wind that ships sometimes stand for weeks in almost one place, and some have given it up and turned about to seek their Pacific destination by going around the world before the west wind that ramps about without ceasing across the antipodean seas.

The sailing routes of the Pacific are shaped by the same forces that operate in the Atlantic. The effect of the prevailing winds is distinctly marked in the north and south tracks. Northward from Cape Horn vessels run comparatively close to the

coast and directly across the course of the west winds. When the ships bound for the Pacific coast of the United States reach the southeast trade they follow it to the equator, work as best they can directly north across the zone of calms, and then at right angles across the northeast trade until they reach the westerly winds, before which they run directly to the land. This last characteristic is much more pronounced in the route from Australia. The remarkable curves in the northern and southern parts of this route, giving it the shape of a letter S, are striking evidences of the value to the sailor of the westerly winds of the temperate zones. The sailing route from San Francisco to Cape Horn goes southward with the northeast trade, turns to the west to get a sailing angle across the southeast trade, and then below the tropic gradually swings south-eastward to the Cape with the westerly winds. From San Francisco to Australia this route is comparatively direct to the tropic of Capricorn, where a turn to the west is made to avoid the westerly winds until as near the Australian coast as possible.

The captain sailing around Cape Horn into the Atlantic desires to avoid the coastal wind and current that carried his ship downward and inside the Falkland Islands. Inbound, he steers far to the east of the Falklands, keeping in the prevailing west winds as long as possible, and then borne onward by the southeast trades makes a gradual curve toward the equator at mid-ocean.

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If the destination is America, a northwesterly route is taken at 10 deg. S., and north of the equator the routes to American and European ports are similar to those from the Indian Ocean, described above.

The Pacific Ocean is peculiar in that it may in a sense be said to be uncrossed by any present or prospective great routes except the one calling at Hawaii. Despite the riches upon its shores, the Pacific may well be called a waste of water. Only upon or near its margin will great and promising trade routes arise, leaving its vast centre to silence and to routes of secondary importance. It is difficult to realize that this one ocean embraces nearly one-half of the entire surface of the globe; that between the mainland of the American continent at the equator, in Ecuador, and the opposite mainland of Asia, near Singapore, lies the distance of 12,000 miles, or 175 deg., almost half the distance around the world. Between these two equatorial points upon the spherical surface of the globe there are three connecting lines of practically equal length, one following the equator directly across the mid-ocean and two slightly shorter ones following the meridians (great circles) and passing respectively near the north pole and the south pole. As steamer routes follow great circles, the great size of the Pacific causes most of its routes to avoid its middle and skirt its margin. Routes from east to west must, to follow great circles, keep in high latitudes near the margin of the ocean to secure their shortest

courses. A glance at Pacific traffic shows it to be on the margins.

The heaviest commerce in the Pacific waters passes up and down the coasts of east Asia and of South America, bound for the exits at Singapore and the Straits of Magellan. By far the most important route entirely upon the Pacific is that connecting North America and Asia, the American-Oriental trunk route. Like the North Atlantic route this is a composite one, and not so compact, because of the irregularities produced by the calls of some lines at Hawaii, 2,000 miles below the line of shortest passage between Puget Sound and Yokohama. It is nevertheless proper to consider the north Pacific lines as one trunk route, since all the different courses are close together at the American end, and converge at Yokohama to follow the Asiatic coast to the ports of China or the Philippines. One line now sends steamers to Manila directly from Yokohama, having them call at Hong Kong and Shanghai on the return. It is probable that other lines now sailing no farther than Hong Kong will, if there is increase in Philippine industry, extend their service by making Manila the final destination. This fact of the shape of the earth and the great-circle routes show the futility of the hope that Manila might become the gateway of the East. It is the last port of the row. It is to Asia as Havana is to America.

On the American side the Asiatic lines have within recent years originated at five places—

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Manzanillo (Mexico), San Diego, San Francisco, Portland, and Puget Sound—and before many years there will probably be other American ports added to the list, although the first two are now discontinued. Lines of vessels start from San Francisco and call at Honolulu, although it lengthens the voyage more than 800 miles. From all starting-points vessels also go directly to Yokohama, and usually by the northern or great-circle route. From Puget Sound it is impossible to follow a perfect circle because of the Aleutian Islands, within sight of which the vessels pass in good summer weather. In the winter it is the practice of some captains to steer straight across the ocean, or even to go south of the direct route to secure more favorable winds and weather. The great-circle route is the one most commonly followed, unless calling at Hawaii; and from all points on the American coast, including Panama, this, the mathematically shortest route to any point in Asia, follows the coast line to California, passes close to San Francisco, closer to Puget Sound than to Hawaii, and thence northward to the latitude of Alaska before turning south and skirting the shore of Japan.

A route of less importance and far less promise than the Oriental is the Pacific coast-Australasian, the last of the steam trunk routes. This route, like the preceding, is composite and more definitely spread out than any other trunk routes. On the east is the course followed by the line plying between San Francisco and Auckland, New Zea-

land, via Tahiti, Society Islands; on the west that from Vancouver to Sydney via Honolulu and Fiji Islands. By a branching of the route at Honolulu, San Francisco is connected with Sydney, and by other branchings at Fiji and Samoa, British Columbia is connected with New Zealand.

This route across the Pacific has been found by experience to be the quickest mail route from Australia to Europe. The weather in the Pacific is usually reliable and favorable, and when the mail has reached San Francisco by direct steamer, it has the advantage of the fastest long-distance train service in the world to New York, and thence to Liverpool the fastest steamship service in the world. In competition with this is the route followed by the slower steamers crossing the Indian Ocean, the Red and Mediterranean seas, and delivering the mail to the railroad only at Brindisi, Italy, whence, with several days saving of time, it crosses the Alps to Paris and London. There are fundamental industrial reasons however, why the Pacific coast-Australia routes lack great promise for the future.

The winds of the north Pacific being essentially like those of the north Atlantic produce a very similar result in sailing tracks, except that all vessels follow the southern track going west.

This brief presentation of the world's ocean routes makes no pretence of being full or complete, but only to point out the main arteries of world commerce, leaving the minor tributaries and dis-

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tributaries to be worked out by those who may have a special interest in the subject.

The avenues of commerce have been divided off into routes having separate names, but it should not be thought that each is separate from the others. The divisions have been made in part for convenience of description, for the routes are not entirely separate, but connect and overlap at various points into a unified system encircling all of the world.

No trunk route with its branches can be considered as an independent unit of circulation with vessels limited to it, and going and coming in even procession with equal numbers inbound and outbound. As no country imports and exports equal quantities of freight, so no route has similar amounts of freight or the requirement for equal number of vessels going and returning. It is usually but not always true that the line steamers go and return by the same route. The irregular element is chiefly furnished by the chartered vessels or tramps which depart from the trunk routes at ports where more freight is imported than exported. They go seeking freight and join other routes at ports that ship more freight than they receive. By this process the Good Hope route is a heavy loser, and the South American and the Mediterranean-Asiatic are gainers. South Africa imports coal, flour, lumber and general manufactures and supplies—all of them being heavy and bulky articles. The leading exports are gold and diamonds, requiring no space worth

mentioning. South Africa is, therefore, a dispersing place for vessels charged with ballast and seeking freight. Some go to India for grain or jute, others to Burmah for rice, others to Java for sugar, some to Buenos Ayres for wheat, some are even compelled to go to the United States.

In Australia the same conditions are repeated. This commonwealth imports iron, lumber, and general manufactures, and exports wool, hides and meat, all of them several times as valuable per ton as the staple imports. Sometimes there is a small export of wheat, but there is usually a large surplus of shipping that must fall back upon coal, which fortunately Australia possesses at Newcastle, sixty miles north of Sydney. With this cargo many vessels go to East Indian and Oriental ports—Batavia, Sourabaya, Singapore, Manila, Hong Kong. After discharging the coal they can sometimes reload directly, but often another though shorter ballast voyage must be made to secure a cargo of Java sugar, Manila hemp, Siam or Burmah rice, or even Indian jute, grain, and seeds. From Newcastle (Australia) other vessels, usually sailers, depart to Hawaii for sugar or to San Francisco, Portland, or Puget Sound for wheat. Others, both sail and steam, carry coal cargoes to northern Chile for nitrate of soda. By these various routes a large proportion, possibly a half, of the vessels that go out on the South African trunk route return to the north Atlantic by another way.



Viridi—Lamport & Holt Service, New York to South Brazil

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China and Japan are likewise countries with a surplus of outgoing shipping, and Japan is an exporter of coal that is in common use as far south as Singapore, and it is sometimes sent to Hawaii and the Pacific coast of the United States. The surplus shipping of east Asia usually seeks cargo in the Philippines, Java, or the United States; some vessels crossing the north Pacific and transferring themselves from the Mediterranean-Asiatic trunk to the South American by way of the American-Oriental.

Triangular voyages are often made in these transfers from route to route. Such a triangle in the north Atlantic is very pronounced.

Brazil exports coffee very largely to the United States, and as the return trade is light, many of the coffee ships load in American ports for Europe and return thence with European goods to Brazil, completing a triangular voyage. Voyages of a triangle character are often made by tramp vessels, and many of them can be figured out from the examples given above, but none of the many triangular voyages are so plain, so unobstructed, and so nearly equilateral or so systematically followed as the Atlantic triangle.

The balance among the routes will be very much disturbed by the opening of the Panama canal, which will give such an added opportunity for vessels to take shorter routes and to switch from route to route as indicated by the accompanying table of distances :

TABLE OF DISTANCES.

To	—New York via—			—New Orleans via—			—Liverpool via—		
	Pres- ent route.	Panama canal.	Saving by canal.	Pres- ent route.	Panama canal.	Saving by canal.	Pres- ent route.	Panama canal.	Saving by canal.
San Francisco.	13,714 I., II. III.	5,299 IV.	8,415 IV.	14,114 III.	4,698 IV.	9,416 IV.	14,084 III.	8,038 IV.	6,046 IV.
Yokohama....	13,564 III.	9,835 V.	3,729 V.	14,929 III.	9,234 V.	5,640 V.	11,640 III.	12,574 V.	934 V.
Shanghai....	12,514 III.	10,885 V.	1,629 V.	13,879 III.	10,284 V.	3,595 V.	10,580 III.	13,624 V.	3,044 V.
Manila.....	11,601 VI.	11,585 VII.	16 VII.	12,966 VI.	10,984 VII.	1,982 VII.	9,677 IX.	14,324 VII.	4,647 VII.
Sydney.....	13,558 VI.	9,814 VII.	3,844 VII.	14,625 VI.	9,213 VII.	5,412 VII.	12,234 IX.	12,553 VII.	319 VII.
Melbourne....	13,083 VIII.	10,022 VIII.	3,061 VIII.	14,051 VIII.	9,421 VIII.	4,630 VIII.	11,659 X.	12,761 X.	1,102 X.
Wellington....	14,333 XI.	8,534 XII.	5,799 XII.	15,301 XI.	7,933 XII.	7,368 XII.	12,949 XI.	11,273 XI.	1,676 XI.
Adelaide.....	12,575 I.	10,530 I.	2,045 I.	13,543 I.	9,929 I.	3,614 I.	11,151 I.	13,269 I.	2,118 I.
Guayaquil....	10,425 I.	2,864 I.	7,561 I.	10,823 I.	2,263 I.	8,560 I.	10,722 I.	5,603 I.	5,119 I.
Iquique.....	9,221 I.	4,021 I.	5,200 I.	9,621 I.	3,420 I.	6,201 I.	9,591 I.	6,760 I.	2,831 I.
Valparaiso....	8,461 I.	4,630 I.	3,831 I.	8,861 I.	4,029 I.	4,832 I.	8,831 I.	7,369 I.	1,462 I.
Coronel.....	8,130 I.	4,836 I.	3,024 I.	8,530 I.	4,237 I.	4,023 I.	8,230 I.	7,577 I.	653 I.

Routes, via:

- | | | |
|--------------------------------|---|---|
| i. Straits of Magellan. | Good Hope, Adelaide & Melbourne | x. Suez Canal, Colombo, King George Sound, and Melbourne. |
| ii. Pernambuco and Callao. | VII. Wellington. | |
| iii. Suez Canal. | VIII. St. Vincent, Cape of Good Hope, and Melbourne. | xi. St. Vincent & Cape of Good Hope. |
| iv. San Francisco. | | xii. Wellington and Melbourne. |
| v. San Francisco and Yokohama. | ix. Suez Canal, Colombo, King George Sound, & Adelaide. | |
| vi. St. Vincent, Cape of | | |

One of the first of these developments is likely to be the establishment of a new current of round-the-world-traffic for both tramp and liner.

It is now the custom for liners going out from Europe to China to end the voyage at Yokohama. But once in Yokohama, the most economical route for the return is by way of America, provided Panama were passable. The steamers could discharge and receive cargo at Hong Kong and Shanghai, and continue from Yokohama to San Francisco. The freight conditions in this part of the world would favor this practice, because the

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trade from China and Japan toward Europe is much lighter than that going the other way. The steamers at Yokohama are, therefore, in straits for freight, and it would be natural for them to seek the abundant freights of California, and thus adopt the practice that is being, and has been long, followed by many sailing vessels that have discharged cargoes in the ports of east Asia. This prediction is further strengthened by the recent establishment of a line of steamers running from England to China and Japan, and then for the sake of a return cargo going on to Portland and Seattle, securing nearly a full cargo of wheat, returning thence to Asia, where such other cargo as may be secured is added, and the whole carried westward through the Suez canal to Europe. The Hamburg-American Company has a service across to San Francisco, and a contract to establish one to Mexico. With the Panama canal in operation it is scarcely possible that these steamers would return to Europe by the longer Asiatic route. If the Suez canal tolls should be as low as those at Panama (which is very unlikely) the use of the American route by regular lines from Japan to Europe would be probable, because the temptation of Pacific coast freight would continue strong and would certainly, as at present, draw many tramp vessels across the North Pacific.

CHAPTER IV.

THE EPOCH OF THE MERCHANT CARRIER ON THE SEA.

THE public carrier performs the most conspicuous transportation service upon the ocean, but the private sea carrier continues to perform a surprisingly large amount of work. The wagon, the typical private land conveyance, is relegated to a purely local work, but on sea the independent vessel is yet a good ship, still maintaining a position of independence, equality, and rivalry in certain phases of the work.

The development of the public carrier upon the ocean giving regular service is more recent than it is upon the land. Its beginning in American foreign commerce dates practically from the close of the war of 1812. Before that date, with certain small exceptions, the unit was the single private vessel belonging to and used by a merchant or a roving captain. Since that date the independent ship has been of steadily declining importance in comparison to the line of vessels running at regular intervals and carrying for all shippers. The causes of the late continuance of the merchant epoch and the slow emergence of the public carrier may be considered under three

heads: (1) The lack of facilities for carrying on commerce, (2) the character of the commerce, including the great lack of travel and exchange of mail, and (3) the disturbed, warlike, and semi-piratical conditions of the times.

(1) At the beginning of the last century and during all the preceding colonial epoch, a long period was required to deliver produce in a foreign country and get the returns from its sale. There was not, as now, prompt departure and quick voyages, not to mention selling by telegraph, and if need be, paying by telegraph. It is now easy to follow prices and, if need be, to send produce to a European commission merchant and get quick returns. By the actual commercial practice of to-day the world has ceased to have dimensions so far as they affect international sales and payments. For practical purposes the telephones bring the merchants of a great city as near to each other as though they were in one building, and the ocean cable, with its codes of pregnant words, brings the men of all cities side by side. Their knowledge of prices, their quotations and their bargains are almost as prompt as the telephone. The financial partners of the wire-flashed knowledge are the bill of exchange, and the international banking system which can transmit credits and payments to the seller as quickly as quotations can be passed to prospective purchasers. From bargaining and from payment the time element has been eliminated, and the improvement of shipping shows that in a

century at least three-fourths of the time element has been cut out of the actual moving of commodities.

A comparison of the modern speedy methods with the possibilities that faced the eighteenth century merchant shows why there was so little organization in those days. A single exchange of letters in any bargaining operation took an amount of time as great as the long round voyage. If a man made a quotation by mail it might be three months before his transatlantic correspondent could accept or decline. Plainly, business by correspondence was well-nigh impossible—a paralyzing example of the drawbacks that came from slow communication. It is true that the bankers had long used bills of exchange in place of bullion and cash, but the bills had to be presented. In the year 1837 there were some heavy failures of American merchants in London, due to the non-arrival of large remittances which they expected to come by the New York packets. They were hourly expected, but were so greatly delayed “during the prevalence of extraordinary east winds which blew for two months”¹ that the merchants with wealth locked in the Atlantic winds failed wretchedly in London for the want of it. This, too, occurred in the days of the famous American packet ships. The present cable would have shot the wealth across the sea literally as quick as lightning. The sailing vessels of 1800 were so slow that months elapsed before

¹ *Quarterly Review*, vol. 62, p. 207.

American goods sent to a European merchant could be heard from.

It was therefore difficult to organize regular ocean carriers in the face of such difficulty of over-sea communication, and the natural response to the conditions of the time was that each vessel usually became a commercial unit—a trading unit—her commercial operations being managed by some one on board in much the same way that a cart peddler or a trader among the Indians seeks his market. The management of the business and the goods concerned had to be in the same place. The possibility of detached control of moving merchandise had not arisen. Under such conditions regularity of exchange of goods is difficult to arrange, and it is upon regularity that lines of vessels depend. Satisfactory development of lines demands such organization of commercial operations that the supercargo or the bargaining captain can be done away with, so that the merchants may stay at home and send their goods by the dependable carrier. This was almost impossible in the slow-going and disturbed century preceding the peace of 1815.

The continuance of the period of private ocean carrying enterprise was made easier by the small tonnage of the ordinary vessel of that day. It was by its size fitted for a private conveyance. Three or four modern freight cars would hold as much as a good-sized vessel and more than most of them. The Maryland or Virginia planter living upon the tide-water estuaries connecting

with the Chesapeake often had his own sailing vessel by which he could send his tobacco or grain to Europe. If he had room he might carry some of his neighbor's. The merchants of our seaports who handled the export commodities of the small producers placed this freight in their own ships, sent it across the sea to market to be sold upon their own account, by their own representatives, and loaded the ships with goods to be distributed from their own warehouses on this side. Almost the whole of ocean transportation of this period was upon the basis of the individual ship carrying the private cargo of her owner, usually a merchant.

- (2) The character of the commerce was such that no steady flow of goods took place between Europe and America or any other two continents of the world. America was in the homespun stage and every household was nearly independent of every other one and of the rest of the world. Foreign trade depended largely upon luxuries and exotics. The import of manufactures from abroad was small and the family supply for many months could easily be laid in at one time. The export of our raw colonial produce was not a trade requiring shipments at all seasons of the year. It was shipped then, as are such goods now, shortly after harvest. Hence there was no great need for lines of vessels to carry freight either to or from this country at all seasons. The commerce of that day was sufficiently served by the irregular voyages of independent ships, of which there were many.

Nor were lines necessary to accommodate the travel of that period. The number of travellers was so small that it would not have paid ship-owners to establish passenger lines. People did not go to sea for pleasure in those days. They went when they were compelled to, and their departure was a matter of tears, prayers, and the making of wills. Those few persons who were thus compelled to make sea journeys hunted up any vessel that happened to be going their way and made their bargains with the captain.¹ The passenger was a corollary, a by-product gladly taken and even advertised for² when opportunity offered and the vessel came to a promising port; but the passenger traffic was never sufficient for a regular business. It is surprising to note the small provision for passengers and the consequent small passenger traffic at the time of the introduction of steam navigation on the north Atlantic. The famous packet ships of 1840 usually had provision for ten first-cabin passengers and twenty second-cabin passengers. In the steerage they could carry hundreds of emigrants to a new home across the Atlantic, but the emigrant business was small in the half-century between the Stamp

¹ In *Views Afoot*, p. 22, Bayard Taylor gives a graphic account of his journey across the Atlantic with a captain whom he had sought out. This was near the middle of the nineteenth century, in the day of the regular packets; but the packets were costly, and Taylor, to spare expense, went in the style of 1800, and hunted up a captain who was quite as willing to fill his space with human beings as with cotton if they paid as well.

² *New York Gazette*, September, 1736.

Act and the exile of Napoleon. The satisfactory unit for all kinds of ocean carrying was, therefore, primarily and naturally the freight vessel sent across the sea upon the private enterprise of her owner.

After the Revolution various changes in national life, commercial conditions, and the technique of ship-building were paving the way for a rapid rise of public carriers when the world settled down to order after the commercial chaos of the epoch of dynastic, colonial, and imperial wars that ended in 1815.

It is not the intention of the writer to give the impression that the period prior to 1815 was one of meagre commercial connections. It was, on the contrary, a period of very wide shipping connections. American ships were everywhere; our fishermen, our traders, and our merchants carried the flag upon their small sailing craft to places where it has since been unseen for decades at a time, but they were bound on individual enterprises, not as common carriers, and they went once where they might never go again.

Referring to the Eastern trade of Boston and Salem, Lindsay¹ says: "In the late 18th and the early part of the 19th century the merchants of Massachusetts supplied not merely their own people with the bulk of the teas, spices, silks, sugar, and coffee from the East, as well as with nankeens and other cotton clothes, but re-

¹ *History of Merchant Shipping*, vol. 3, p. 6.

shipped them from Boston to Hamburg and the northern ports of Europe in their own vessels." Owing to the monopoly of the British East India Company they were enabled to derive large profits from trade with British colonies from which British subjects were excluded.

In the same period Philadelphia boasted that her ships went to Calcutta, Madras, and Canton and Sumatra; to Leghorn, Messina, Hamburg; the ports of Spain, Portugal, and France, and, as of old, greatly to the West Indies.¹

This is almost as good a list of connections as that same port can boast to-day, when it is the metropolis of a State twice as populous as the nation of 1790. Many a little port like Salem, Nantucket, Richmond, Bridgeton, N. J., which sent ships the world over a century ago, is now but the harbor of fishing boats and paddle-wheelers.

The method of carrying foreign mail during the colonial period is indicative of our transportation methods until after the War of 1812. We are told in the early history of New York that the keeper of a tavern hung up a coffee bag in his place for the receipt of letters. Before setting sail the masters of vessels called for any accumulated mail and delivered the letters through some tavern at the port of destination for a penny apiece. This method the British conquerors of New York found in vogue in 1665, and continued throughout most of the colonial period. It was

¹ Young's *Memorial History of Philadelphia*, vol. i., p. 409.

only in 1816 that the mail was taken permanently by regular lines of packets.

As late as 1851 an American publicist in setting forth the reasons why the United States should have a steamship line to the Mediterranean advanced as one of his arguments the fact that it was a shame for the American people and the American nation to be any longer dependent upon the chance sailing ship for the transport of mails to that part of the world. "At the present time it [the government at Washington] is compelled to rely even for the carrying of its despatches to naval commanders on that station and the coast of Africa upon transient vessels or the ordinary routes over the continent of Europe. We have known of a case of a vessel in the Mediterranean and others on the coast of Africa required in our home service and ordered home immediately when the despatch did not reach the commander for fourteen weeks after it was sent"¹—time enough for the battleship *Oregon* to sail around two continents and have a month to spare.

The same writer who in 1850 was arguing for a steam line to Italy from New York estimated that, since travel to Italy had so greatly increased, there must then have been 700 Americans going to Italy each year. As mail and travel go hand in hand, it is plain to be seen why there was no regular connection or regular mail to the Mediterranean from this country even in 1850, for these

¹ *De Bow's Magazine*, 11: 232.

conditions were like those prevailing between America and the other countries of Europe at earlier dates.

(3) *The Effect of Unsettled Conditions.*—The period from the Revolution to the War of 1812 was one of great commercial activity, but one ill-suited to the establishment of regular connections. The European trade reprisals which accompanied the wars beginning with the French Revolution and extending through the Napoleonic upheaval rendered the American ship often the prey of the naval vessels of both England and France. She suffered from the navies and the privateers of both these countries, from Mediterranean pirates, and it is even asserted¹ that under the cover of the general disturbances American privateers took American vessels. Under such risks the maintenance of regular service was impossible. But the profits of the commerce of this period were so large as greatly to tempt individual enterprise, and this indeed seems to have been the period of its greatest development in ocean transportation. Lindsay in his *History of Merchant Shipping* says (vol. 2, p. 363) of this time that American "merchants and ship-owners increased in numbers to an extent out of all proportion to the general state of the population. Many persons who had realized moderate capitals from mercantile and other pursuits now became daring adventurers as carriers by sea." Plain commerce was "daring adventure."

¹ Lindsay's *History of Merchant Shipping*, vol. 11, p. 379.

The establishment of lines which might have come then was unquestionably delayed by the uncertainties and disturbances of the time. Periods of peace, then as during the preceding century, were of short duration—too short for the growth of well-established lines, which at best are the result of years of development.

The great shipping lines of the present have nearly all had small beginnings, with slow growth at first, and have attained their great size in from thirty to sixty years. Their ripening into greatness is usually the result of some one man's business genius, and his career normally reaches over several decades—sometimes half a century. Many of the great ocean lines show, by an examination of their history, that they have been started and built up by the life-work of some one man. This slow growth, too, has occurred when the merchant and the carrier have had at their command all the speedy tools of to-day—of steamships, railways, telegraphs, and the security of large populations and nearly continuous naval peace. During the eighteenth century England, France, Spain, or Holland were engaged in naval wars nearly half of the time. Two decades of continuous peace were almost, if not quite, unknown, and the intervals were usually much shorter than this. And pirates almost as bad as war were ever on the sea and were never out of the merchant captain's mind.

The New York and Philadelphia journals of the first part of the eighteenth century contain a

wonderful collection of reports of the encounters and experiences with the pirates who sailed the shores of the north Atlantic. This is the reason for the eighteenth-century resemblance in build that existed between a merchantman and a war vessel. To make matters still worse, war in that day meant privateers who multiplied many fold the number and commercial destructiveness of navies. It is hard to draw any economic distinction between privateers and protected pirates. Both forbid line traffic. No vessel was so surely theirs as the vessel of known and regular movements.

There was thus a premium on disorganization and a premium on increased trade in the first quarter of a century of our national existence. The merchant trader loaded his vessel with cargo and sailed away. If he escaped capture he could sell his cargo in the West Indies or Europe at rates which were extremely profitable. But he took in his own hands not only his property, but his life. Here, therefore, was the most commanding motive for the building of fast ships. If you could outsail your rivals and the pirates you got rich quickly; if they outsailed you there was a capitulation or a fight, and perchance your ship went off under some other captain flying a foreign flag, and you might return a man before the mast or you might end your days a slave in Barbary. The result was that the American vessel became the fastest in the world.

The trade method of the period is well illustrated

by the case of one Abraham Pesch, a prominent shipping merchant of Philadelphia. He decided to risk the danger of trading with the blacks of San Domingo, who were then in insurrection and bitter with hatred toward the whole white race. Pesch's schooner was forthwith "invitingly" laden and cruised about at a safe distance, but near enough to tempt the natives. Thomas Thuit, the single white man whom the natives had saved, that he might serve their commercial interests, communicated with the schooner, assured her of safety if she moored, unloaded, and sold her cargo. "Impromptu coffee at five cents a pound was poured like sand into the hold of the craft until water washed her gunwales."¹ The cargo was sold at a great profit on the vessel's return. Such vessels might be owned by a merchant who would send his vessel after cargo, or they might be owned by a roving trading captain, who would get a cargo in the manner indicated above and sell it to some merchant upon his arrival in port.

The career of Stephen Girard is typical of the commercial methods of the period. He was a merchant and ship-owner who sent his ships for foreign goods, and he also bought cargoes that were brought to the port by such rovers as Pesch. Girard's greatest prosperity came during the period 1793-1812. He seems to have been one of the pioneers in a quickly copied policy of sending a vessel out to make repeated exchanges of cargo before returning with accumulated profits. "His

¹ Abraham Ritter's *Philadelphia and her Merchants*, p. 21.

vessel went to the West Indies, where cargo was exchanged for coffee and sugar; then proceeding to Hamburg or Amsterdam, the coffee would be sold for Spanish dollars or exchanged for cargo which would secure him at the Spice Islands, Calcutta, or Canton the products of those climes."¹ We probably owe the possession of Oregon to voyages of this character by which Astor and others of New York traded for furs on the Pacific coast that they might exchange them for tea in China.

Men did not usually embark on these enterprises—more dangerous than present service in the navy or standing army—for mere pay. Then, too, the owner wanted the greatest possible interest of the crew in the success of the voyage. Derby, the great merchant of Salem, gave each of his common sailors the privilege of taking 800 lbs. of freight for private trafficking and personal profit. The officers had a proportionately larger share. In 1819 an English publicist bewailed the fact that his nation must soon disappear from the China trade because there was nothing to send out but bullion and coin, while the prosperous traders of the United States had the coveted ginseng and possessed a monopoly of trading on the north Pacific coast of America, where for a few trinkets and old clothes the Indians would surrender the choicest furs, to be exchanged for China cargoes on so profitable a basis that even the common seaman's share of the gain was sometimes several thousand dollars.

¹ Henry Wairey's *Girard College and Its Founder*, p. 16.

During the merchant carrier period of the beginning of the nineteenth century the captain of the ship naturally filled a much more important place than he now does. At present he is chief navigator, subject to steamship agents, who load and unload his vessel, and to pilots who keep him in leading strings until he is safely down to sea. A hundred years ago he was usually his own pilot, and he was often, in addition, the owner or the business representative of the owner, if perchance the owner was not also on board. The captain sold and bought cargo like a merchant. If he lacked the qualities for such service the ship carried a business manager called the supercargo, a man who has now long been unnecessary because of the commission merchant, the ship-broker, the freight-broker, the ocean cable, and the wide mercantile organization that has resulted from instantaneous communication, changes which have reduced the captain to the position of conductor on a freight train and made the supercargo, like the pirate, an ornament of history.

- The close of the War of 1812 has been mentioned as the most important date marking the transition from the merchant carrier to the public carrier. It is almost needless to point out that the merchant continued a carrier after this date, and that, on the other hand, there had been many previous signs of the coming change. Some of the preliminary steps in this change are worthy of notice here. First among these signs of change is the increase in the practice of chartering ships—*i. e.*,

hiring out; second, is the growth of the practice of having an agent transact the port business of the ship; third, the increase of joint ownership of shipping enterprises; fourth, attempts at founding lines.

1. The practice of chartering vessels is almost as old as history. It was practiced on the Nile in Roman times, with a good bill of lading. The Venetians carried it to a fine point to the heyday of their prosperity, but the practice did not begin to affect relations in the Western world until about the close of the eighteenth century.

It was the most natural thing conceivable for a merchant knowing the lines of trade to find that he could use more ships than he had, and hire one. That it had not come into prominence much sooner must be due to the fact that wars, disturbances and governmental restrictions in America, and the great chartered companies in Europe kept mercantile firms at a small size in colonial times. But in the prosperity that came from supplying Napoleon's armies during the last decade of the eighteenth century ships were chartered.¹

Closely akin to chartering was the offer of merchants of Havre to the rover Cleveland, when he was in that port empty-handed and with full pocket from profitable sale of both ship and cargo. Several firms offered to fit up a ship for him, load it with a rich cargo, and let him start out to make traffic with it.²

¹ Lindsay's *History of Merchant Shipping*, vol. 2, p. 397.

² *Voyages of a Merchant Navigator*, p. 17. Cleveland.

In Boston¹ two vessels were advertised in 1789 as about to sail for the Isles of France and India, and "any person wishing to adventure to that part of the world may have an opportunity of sending goods on freight." The use of the word "adventure" there is also extremely suggestive of the attitude of the day toward maritime operations—you sailed over uncharted and piratic seas to unknown lands, strange peoples, and markets of which you had only last year's reports. This practice of carrying for others evidently advanced rather more rapidly in Great Britain than in America, as witnessed by the following passage from the introduction to the volume published in 1807 by the Society of Shipowners of Great Britain²:

"The Society of Shipowners think it important to state that the numerous body of men whose capitals are embarked at this time in British shipping are not engaged in other mercantile pursuits, but depend wholly on the returns they expect to receive from their property so employed. This observation is considered the more necessary from recent inquiries which have been made to ascertain who the Shipowners were, they never having been before considered distinct from the Merchants, and that the property in shipping

¹ *Memorial History of Boston.*

² The volume is entitled *Collection of Interesting and Important Reports and Papers on the Navigation and Trade of Great Britain, Ireland and the British Colonies in the West Indies and America, with Tables of Tonnage and of Exports and Imports.*

generally belonged to that very respectable and intelligent class of his Majesty's subjects."

2. *The Rise of the Agent*.—Toward the end of the eighteenth century there appear evidences of a change in the function of the captain. His old position is well shown by this advertisement from the *New York Gazette* of 1736:

"For Philadelphia, the Schooner Judith and Rebecah, John Clark, Master. Well-accommodated for Passengers, will sail in about ten days. For Freight or Passage agree with said master at his house near the Custom House."

This announcement, full of the atmosphere of a village on the river's bank shows the smallness of colonial commerce. More complex conditions are shown in 1783 by another advertisement announcing that in addition to the captain (who might not always be available to landsmen) persons desiring freight or passage could confer either with the captain or some merchant who was an important user of the vessel¹ and was taking orders for her and for the time at least acting as the merchant captain's assistant. We have here the germ of the present institution of ship agents—a world-scattered fraternity—who now arrange such a large share of the world's ocean transportation.

An advertisement of the year 1800 (*Philadelphia General Advertiser*, April) shows that the ship's agent was fast developing:

"SAMUEL EMERY, Ship Broker.—Buys and

¹ See *New York Royal Gazette*, 1783.

sells vessels, procures freight or charters, transacts all kinds of business at the custom house for entering and clearing vessels of goods, and obtaining the drawbacks of bounty, etc. Settles captains' accounts, etc., etc."

— 3. *Joint Enterprise*.—The close of the Revolutionary War made it possible for Americans to engage in the China tea trade—a trade requiring such a long voyage and so much capital that the individual owner was often unable to finance the venture. The first American ship that went out from New York to China was the joint enterprise of merchants in Philadelphia, New York, and Boston. Joint-stock companies¹ were formed to build and despatch these ships. It also became common for partnerships² to be formed, in which each holder had a share, corresponding to the present method of divided ownership in American coasting vessels, various persons owning halves, fourths, sixteenths, thirty-seconds or sixty-fourths. The captains of these vessels usually had a small share; each sailor also often had a share, in that he was allowed a certain amount of space or a certain weight of cargo to use for any merchandise he might take for private trading on the voyage. The partnership vessel was operated as a unit—a private unit—the partnership having merely split the ownership without changing management or service. The time for lines had not yet come.

¹ Scharff and Westcott's *History of Philadelphia*, vol. iii., pp. 2210-12.

² *Memorial History of Boston*, vol. iv., p. 204.

4. *Early Attempts at Lines.*—There were some early attempts at the establishment of lines, but a diligent search of the literature of the period reveals but little concerning them. There were vessels to charter, and there were roving sea captains engaged in all grades of occupations, from the "honest" buccaneer to the legitimate merchant. But none of these approach line traffic, and the very existence of most of these navigators and the accounts of their activity add weight to the belief that the scanty annals of the eighteenth century line traffic are scant because of the paucity of such activity. What we know of the history of the period and of the requirements of line traffic shows that it was plainly impossible for any such service to have been long-lived. The following incidents appear to be natural and descriptive of the period:

Before the Revolutionary War there were five packet boats plying between New York and the port of Falmouth, England, known as the Falmouth Line.¹ They sailed occasionally during the Revolutionary War, and some of them resumed service after 1783, but the accounts of their operations are extremely meagre, and a dozen chroniclers aver that the first line from America was in 1816.

The signing of the treaty of peace of 1783 was the signal for a pretentious French venture at opening up connections with the new republic.

¹ J. G. Wilson's *Memorial History of New York*, vol. iv., p. 534.

In November, 1783, before the evacuation of New York, the *Courier de l'Europe* arrived in port from l'Orient, France, and heralded herself as the first of a line of first-class packet ships which advertised to make monthly sailings between New York and France and to carry passengers, mail, and freight.¹ But the depressed condition of American commerce seems to have been very discouraging for this new venture, which did not long survive. Then came the French wars, and regular service was impossible.

Mention is made in Colonial Office records (London), Board of Trade papers, vol. xvi., *Trade Papers*, of the establishment of regular sailings of packet boats between New York and England, 1703. There are also post-office record references to the New York packet service.

An examination of the documents of *Colonial History of New York* shows plainly (vol. v., p. 811) that packet service could refer to a to a single ship, 1726, and further accounts of the traffic show that if lines existed they must have been very nearly imaginary lines. For three years, 1715-18 (vol. v., p. 618) the average number of ships, sloops, and the like from New York to Great Britain was 21, of 1,461 tons and 226 men. This entire flotilla is not one-tenth the size of some steamers now plying on that route. The correspondence of the colonial governors with the Board of Trade shows frequently that there

¹ J. G. Wilson's *Memorial History of New York*, vol. iv., p. 544.

was no regular service, and that many weeks, and even months, elapsed between opportunities to send a letter.

This rather brief statement of the conditions under which early ocean carrying existed has, it is hoped, made clear the reason for calling this long period of the American colonial epoch and the establishment of the republic the epoch of the merchant carrier. There was, practically speaking, no other carrier than the merchant carrying his own goods; other service was incidental—a by-product. The public carrier, the specialist, had to have the better conditions of the nineteenth century; and of all these beneficial conditions the most important were peace and security from the ravaging hand of man. The resulting traffic transformation has been remarkable.

In the merchant carrier days of the late eighteenth century a small city like Salem sent ships to a wide list of countries, such as we now only find trading with a few of our ports, each of which is ten to twenty times as large as was the now decadent Salem in her prime. Her merchants sailed from place to place and traded with the merchants in the ports where they stopped. To-day the merchant ships his consignments by some line of steamers from New York, Boston, San Francisco, Philadelphia, and if need be he will have them transshipped at Liverpool, London, Hamburg, Antwerp, or Genoa, but it goes by the lines.

We still have a long list of countries on the custom-house books for ship entry and clearance,

but instead of being roving merchant ships, with valuable cargoes, they are tramps carrying a full load of some bulky produce—logs for cabinet, dye or tanning stuffs, ores of copper, nickel, silver, iron, or manganese, flint or clay for the potter, pebbles for cement grinding, guano, bones, or fossils for fertilizer, coal, petroleum, lumber, sugar, or wheat. Most of this is new commerce—commerce of the steam engine and steamship era, and it has arisen beside the old which yet flourished, but in a different way. The tea, silk, spices, and trinkets of the eighteenth century now ride in state and haste in some snug, secure, and peaceful steamer fully insured and following a prosaic schedule along a firm, fixed, well-lighted, safe, and unromantic route. Together the merchant carrier and his counterpart in independence, the pirate, ceased to be the conspicuous figures of the sea.

CHAPTER V.

THE ORIGIN OF THE PUBLIC CARRIER ON THE SEA.¹

✓ THE year 1815 brought peace in Europe and America, and what was of particular importance, peace upon the Atlantic. Commerce, freed from the risks of war and increased to greater dimensions than ever before, was now in every respect ready for organized transportation by lines of vessels performing the service of public carriers. The speedy American vessels, built for privateers and with occupation gone, were well suited for this new service, to which they were now turned. Promptly after the peace of December, 1815, a line was established between New York and Liverpool. Others quickly followed. Boston and Philadelphia were soon included. These new lines of sailing packets carried passengers, the mails, and valuable freight and from that time to the present we have had a steady development in the extent, efficiency, permanency, and regularity of line service across the north Atlantic Ocean.

¹ References: *Harper's Magazine*, vol. lxviii., p. 217; Scharff and Westcott, *History of Philadelphia*, vol. iii., p. 2216; *Harper's Magazine*, Jan., 1884, Feb., 1892; *Quarterly Review*, vol. lxii., p. 207; *Hunt's Merchants' Magazine*, 1840; British Admiralty, private letter.

✓ The first line, the famous Black Ball Line of 1816, was founded by Isaac Wright & Son, Chas. H. Marshall, and others. Their vessels, of four hundred to five hundred tons burden, were considered very large and fine and sailed regularly on the first of each month from New York to Liverpool. For the first nine years the average time to Liverpool was twenty-three days, with a record of fifteen days and eighteen hours, and the return voyage against the north Atlantic winds averaged forty days. A second Liverpool line, the Red Star, was founded in 1821 by Byrnes, Grimble & Co., with a monthly sailing day on the 24th. The now prosperous Black Ball Line met this rivalry with enough new ships to despatch one on the 16th. Promptly thereafter the interval in the weekly calendar was filled by the Swallow Tail Line (Thaddeus Phelps & Co. and Fish, Grennell & Co.), which had its sailing day on the 8th, and for the first time New York had the advantage of a weekly packet to Liverpool.

... In 1821 Thomas P. Cope & Son, of Philadelphia, merchants, who had for fourteen years been in the Liverpool shipping trade, established a packet line from their city to Liverpool, which was sustained through all circumstances. For nearly half a century this was a famous line, and for many years it was Philadelphia's only line.

In 1823 the proprietors of the Swallow Tail Line from New York to Liverpool established a line of packets from New York to London, which survived until about 1870. The founding of

his first line of London packets resulted in a second line being founded about the same time by John Griswold (later E. E. Morgan's line).

"About" 1822 the first line was sent to Havre by Francis Depau, and ten years later William Whitlock started the third, the second having been established somewhere in the interval by Messrs. Boyd & Hincken.

The line traffic of the packet ships, now well established, to Great Britain and the continent, went on increasing and prospering, new lines being established, new and better ships added, until past the middle of the century. This is the much-boasted period of American leadership upon the seas. Nearly all of our commerce was carried under our own flag and much of the commerce of other countries. We outsailed the ships of other nations and got the lion's share of the passenger traffic. The packets were the most elegant, comfortable, and commodious ships afloat. A packet for London in 1823 was advertised as having a physician and a piano on board, and one enthusiastic American writer, with a mind full of details and performances of ships, declares that "in their presence the English and French trading vessels were absolutely insignificant. Their agents, builders, and captains speedily became rich, for all were owners—the agent owning, say, an eighth of the vessel; the builder another eighth, in order that he might secure the job of repairing her, which cost about \$500 a round trip; the captain another eighth, that he might

have the strongest of all motives to vigilance and prowess; the blockmaker and the sailmaker each a sixteenth, perhaps; and the other persons the remainder, a packet of 500 tons being worth about \$40,000."

These sailing ships were steadily improved and enlarged, but it is stated that the *Mississippi*, of 750 tons, was the largest American merchant ship when she was launched in 1833. In 1843 there was a marked increase in size and in 1846 the *New World* held the size record and was regarded as a wonder with her 1,400 tons. In 1854 the two Morgan liners, *Palestine* and *Amazon*, reached the high-water mark of 1,800 tons. In that year one of these ships put her passengers in London two days ahead of the Cunard Line steamer, having landed them at Portsmouth on the fourteenth day out from New York. This fourteen-day record for the packet ships was an unusual, though repeated, occurrence.

— The New York packet service to Europe greatly stimulated the coasting trade. In addition to having the local trade, the coasting vessel had the surety of being able to forward goods to Europe by the packets, proceeding at regular intervals. Goods came from New Orleans, Charleston, Baltimore, Philadelphia, and Boston to be forwarded. The development of coasting lines was the next natural step. In 1818, two years after the origin of the packet service, there was a line of 180-ton sloops running from Boston to New

York. There is mention of a "regular packet" to Charleston in 1825. In 1832, E. K. Collins established a line of full-rigged packets to Vera Cruz. The prompt success of this line caused him to send a schooner line to Tampico, and in 1832 the first regular line of packets to New Orleans.

No one should let this account of the packet lines create the impression that the era of the merchant carrier with his individual ship was at an end. The packet lines were limited to the north Atlantic and to the trade of a few ports in America with a few ports in Europe. The long-distance trade of all the rest of the world went on as of yore, while line traffic grew and improved in the one little corner of the world's ocean that separated the commercial metropolises of Europe and North America.

It is rather remarkable that this period of the origin of line traffic should have been also the period of the greatest brilliance in the whole history of single-ship enterprise. Yet such was truly the case, through the fame that attended the clipper ship era from 1840 to 1855. The clipper was among tramps what the packet was among liners. The trade with India and China, and later with California, was over routes so prodigiously long that line traffic was practically impossible, but speed was none the less desirable. So the clipper, profiting by all the experience of the packets, was built, long, sharp, and narrow, with every possible regard for speed, so that she might distance all rivals in the race for the ports

of the antipodes. This speed was particularly valuable, because the English tea purchasers coveted the first new teas, and there was an annual tea ship race to get the new crop to the British market. The captain of the ship carrying the first cargo was in an exceedingly fortunate position, because he could sell it out at a fancy price, yielding an exorbitant profit. The time of tea harvest in south China saw annually a fleet of vessels there waiting for the chance to hasten away with the first cargo. This fleet of clippers was largely American, because in the preceding thirty years it had been so repeatedly demonstrated that no other ships were so fast. In 1853, the little clipper *Architect*, built in Baltimore, won distinction by placing her tea in London in 107 days from Canton, and getting her whole cargo sold before any of the British fleet arrived. The *Architect* took scrap iron to New York, and there loaded flour and cotton goods for China. Her next tea voyage showed the value of a speed record, for she was at once chartered to take tea to London for £8 per ton, while the English vessels were glad to get £3 or £4 per ton.

The first of the clippers to demonstrate the differentially high value of speed was the *Rainbow*, 750 tons, of 1843. She was quickly copied by the leading merchants of the day, but they rather overdid the matter of speed, for many of these vessels were so light that they were easily strained and the repair bill cut into profits.

Then came fast clippers of greater strength and size, reaching up to and passing 2,000 tons. One of these larger vessels, the *Comet*, made the record voyage from New York to San Francisco in seventy-six days, and the *Flying Cloud* made the San Francisco-New York voyage in the astonishing time of eighty-four days, breaking all records.

In 1854 the *Dreadnought* reached Sandy Hook from Liverpool the same day that the Cunarder reached Boston, and the Cunarder had started one day earlier than the clipper.

The *Sea Witch* was another of these famous ships, which netted her owners \$50,000 above all expenses by the freights earned on the voyage from New York to London via San Francisco and Canton. In 1852, 157 vessels arrived at San Francisco, and of these seventy were clippers.

These clippers were often owned by the leading merchants of the period, and they brought a world renown to the American sailor and the American flag, which the Americans of that day enjoyed to the fullest and which the historians of the present make the most of.

The change in the names of the ships from 1815 to 1850 is suggestive of the changed spirit of the men of the time. At first, as they crept out from under the right of search, their ships were named *Hope*, *Endeavor*, *Perseverance*, *Traveler*, etc. Then came a period when the names of merchants and captains were commemorated, and lastly came the confidence of triumph, and

the ship was named *Challenge, Invincible, Flying Cloud, Sovereign of the Seas*.

Several causes contribute to this double triumph in both branches of ocean carrying. It is all included by saying that it was a superior class of men commanding and manning a superior class of ships. This period was dominated by the men who went to sea or went to the counting-room in the period preceding the peace of 1815. Most of these men came from New England, where the opportunities for employment were not numerous. The great West was a wilderness unapproachable by any except those who chose the emigrant wagon and the life of the frontier farmer, whose opportunities for marketing produce were exceedingly meagre. Other than this the young men could go to town or go to sea, and they did both. Young men of parts, of family, and of education went to sea in those days and began before the mast. The quarter-century preceding the peace of 1815 was a time when the risks and prizes of the sea trade were a particular temptation to a lad of courageous, hardy, and venturesome equipment. Combining this with stagnation at home, we have a reason why some of the ablest men in America should be found despatching ships and striding the deck between 1820 and 1860. The New England whaler was a schoolship of the most efficient sort for the graduation of the sons of New England into the sea life which they helped to elevate to its most distinguished epoch.

Harried by privateers, pirates, hostile navies,

and British captains exercising the right of search, the American ship had come to beat the world at running away, and hence was the fastest thing on the surface of the salt sea. The good American sailor had a good ship. The merchants of the day had also often come to the counting-house after having risen to the command of ships. With such men, having such experience, the era of packets and clippers was natural. There are occasional records of whole crews on an American ship in which all but two or three of the men could perform feats of navigation only known to the officers of foreign ships.

In 1880, with possibilities of safety considerably advanced, insurance rates on the same kind of vessel had gone up fifty per cent.—a direct measure of declining efficiency of navigation due to change in character of crew.

The captain of a packet or clipper was a man of more financial and social importance than is now to be found on the ships of peace. He was absolute master of the ship and all on board. The engineer on some great steamer lines is not responsible to the captain. The captain of 1840 was commander, part owner, often attended to the cargo and met merchants on an equality. "His income was often \$5,000 a year, consisting of five per cent. of all of the freight money, five per cent. of all the steerage passage money, twenty-five per cent. of all the cabin passage money, the entire receipt from the carriage of the mails—two pence a letter from the British Government, and

two cents a letter from the American Government—and a salary of \$360 per annum, and moreover, he had the privilege of taking his wife, and sometimes even her sister, board-free.”

Forty years later the steamship lines had driven these noble old captains and their ships from the sea, but the steamer captain had not secured his emoluments. The captains of the Hamburg and Bremen liners received \$1,200 per year and the Cunard commodore got only \$2,500.

The lines, firms, and shipping enterprises of the period from 1815 to 1850 grew up naturally and gradually, as is the case with nearly all great enterprises. The inception of the famous and record-breaking Collins Line is due to the energy of E. K. Collins, whose career is typical of the period. He was born in 1802, the son of a sea captain. He was reared on Cape Cod, and at fifteen was a clerk in a New York store. At twenty he was a supercargo, sharing the profits of voyages to the West Indies and testing his nerves in shipwreck and pirate fray. At twenty-three he became partner with his father in mercantile business in New York. One day a returning Liverpool packet reported a phenomenal rise in the price of cotton. Straightway the speculators bought all they could find and engaged passage to Charleston on the packet which departed that afternoon. A rival syndicate was formed to try for this Charleston prize. Their representative was the young Collins, now twenty-three, who much to the merriment of the speculators

on the packet crossed the bar beside them in a pilot boat. But he had been down that coast before, and his shallow-draught boat followed inshore passages, and when the New York packet crossed the Charleston bar young Collins was sailing out, master of all the cotton in Charleston and on adjacent rivers. His fortune was half made and the next year he married an heiress. Four years later he established a line of full-rigged packets to Vera Cruz, then a line of schooners to Tampico, and in 1832 he established the first packet service to New Orleans.

He knew enough about ship-building to introduce some new designs for the New Orleans packets, and when in 1835 he sent his *Shakespeare* to Liverpool she created so much interest that she had to decline three times as many passengers as she could carry. Mr. Collins took the hint from this profitable and auspicious voyage and founded the Dramatic packet line to Liverpool.

But scarcely had he got his transatlantic line running when in 1838 the British steamers *Sirius* and *Great Western* successfully and profitably crossed the Atlantic and were followed by others. In 1840 Mr. Collins is reported to have said: "There is no longer chance for enterprise with sails. It is steam that must win the day. I will build steamers that shall make the passage from New York to Europe in ten days and less." It took him ten years to keep this promise, but he did it.

These glowing accounts of success and speed

of the sailing vessel are not the whole story. The best sailing ships in the world sometimes had their exceedingly great difficulties in the perverse winds of the Atlantic. There is an account of a vessel that made 5,000 miles and crossed the Gulf Stream three times on the 3,050-mile route between Liverpool and New York. The bark *Ellen*, 103 days from Leghorn, hoisted her flag at Sandy Hook and was then driven off to sea for another month with her crew subsisting on macaroni and sweet oil. In February, 1837, the British ship *Diamond*, 100 days from Liverpool, reached New York with 163 passengers, having lost seventeen from plain old starvation. The packet record for tedium from Liverpool to New York was 110 days. Truly the passenger on such voyages needed many resources for entertaining himself.

The extremes of slowness, like the extremes of speed, should be compared with the average performance of the packet ships, New York to Liverpool, Liverpool to New York.

	Days	
	New York to Liverpool.	Liverpool to New York.
10 year average, 1829-39.....	24	36
1 year average, 1839.....	22½	33½
Record voyages for 1839.....	18	22
Average of the two new steamship lines, 1838-39		13

The era of the prosperous and triumphant clipper ships was short-lived; 1855 may be put down as the last year of their heyday. A few years before a Yankee offer of \$20,000 on a race from Canton had had no takers, but in 1855 a

British clipper won a notable race from the East. In 1856 the Panama railroad was completed and thereby a great prop was knocked from clipper ship prosperity. California trade had been one of its main standbys. Linking it with the China trade the clipper ship made fine voyages round the world. By our coasting trade reservation the Atlantic coast trade to California was an American monopoly, thus reserving to the American ship this very important link in the clipper ship world circuit. But here came the Panama railroad joining its steam wagons with the steamers that came down from San Francisco on one coast and went up from Colon to New York on the other, cutting into the clipper's boom of prosperity with a mercilessly quick and regular connection between New York and San Francisco. Eighteen hundred and fifty-six was a black year in shipping rates and a blacker year in the almost abandoned shipyards. The next year brought the panic of 1857, and four years later came the Civil War, and the clipper had descended to the inconspicuous commonplace.

The downfall of the packets was less sudden in that it was a gradual decline spread over a period of thirty years, from 1840 to 1870.

The first successful crossing of the Atlantic by steamer was really the doom but by no means the cause of immediate death of the packet ships, despite the graphic journal entry of a passenger on one of the Black Ball packets as the *Great Western* overhauled and passed her on this maiden

trip to New York: "Then [the steamer] dashing ahead . . . the brave old 'liner' [packet] is no more seen. Her owners will scarcely know her when she reaches port at last. She brings no news. She will soon bear no letters—no specie. Nobody will watch for her, nor speak of her. Alas! her day is gone by. Who can think of her suffering without a sigh?"

But the steamer did not do all this suddenly. Her struggle upward was slow and painful. In five years after the *Clermont*, the first of the steamboats run on the Hudson, 1807, the steamer had conquered the Western rivers by ascending the Mississippi and opening a continent by putting lines of steamers on its rivers; but it took more than five times five years more to develop the ability to compete with packet liners on the Atlantic. In the interval the lines of steamers on short voyages and coasting voyages had far outstripped all rival sailing lines. The sailing vessel is good for the open sea, away from the impediments of coasts where sailing ships so often come to grief. The sailing vessels that carried the mail were, when winds were adverse, sometimes many days in making a hundred miles between some British and some continental port. In 1815 a sixty-three-ft. steamer passed from the Clyde to the Thames—the first to be upon that river. Other voyages were soon made and the fitness for coasting service was observed.

The action of the British Government concerning the mail service during the decades 1820-40

throws interesting light upon the efficiency of the new lines of sailing vessels, the limitations of their service in competition with steamers on short voyages, and the scope of private enterprise. About 1820 it was found that steam vessels could satisfactorily carry the mail from Great Britain to the continent of Europe. But there were no private owners in a position to do this work, and from 1822 to 1854 the British Government provided its own steamers, the mails being carried in vessels owned and operated entirely by the British Government upon regular service, carrying some freight in addition to the mails.

When the government began this service private enterprise in shipping lines was at a low ebb, but it soon seized the new tool for the development of public carriers, and the coasting trade is thus glowingly described by a writer in the *Quarterly Review* of 1838 (vol. lxii., p. 188):

“There are at this hour scarcely two ports in the United Kingdom of any consideration between which steamers do not regularly ply. In 1818 the most sanguine never dreamed of their being available for much more than inland navigation, with here and there a little circumspect sallying out and skirmishing along the curves of the coast something after the style of the ancients. . . . Who would have believed that by this medium would be maintained our regular communication with all the neighboring ports of the continent and through them with Europe at large?—that every week at least, in some cases

daily, London boats would be visiting Hamburg, Holland, Belgium, the French coast, Lisbon, and Cadiz?"

At this time the steam coasting service that had survived upon the American coast was limited to Long Island Sound, although in 1818-20 a steamer had made several trips from New York to New Orleans via Charleston and Havana. There had also been some other isolated voyages, but all were of small significance.

During this twenty years, 1818-1838, when the steamer line had been proving itself in the English coasting and continental trade and upon the American rivers and lakes, there had been various sporadic and unsuccessful attempts at long ocean service. The famous voyage of the *Savannah* to Liverpool was not a commercial success, nor was the ship steam-driven all the way. In 1825 a steamer with auxiliary sails went from England to India, but she stayed in the Indian service. In 1830 one went to Australia, but, instead of being the founder of a line, she was a heavy loss to her owners. In the late twenties a steamer made a few trips from Europe to Guiana, but she soon stopped and no others followed.

The occurrences of 1838, however, showed that after all of these experiments the steamer was at last ripe for the Atlantic trade. In that year the transatlantic steamer proved itself to the satisfaction of business men and even of the conservative British Government. Since 1833 Junius Smith, an American merchant in London, had

been laboring on the scheme and finally his company, the British & American Steam Navigation Company, succeeded in landing a steamer in New York from Portsmouth, England, on April 23, 1838, the same day that the Great Western Steamship Company landed the steamer *Great Western* from Bristol. The people of New York went into transports of joy. Later in the year the Transatlantic Steamship Company of Liverpool also sent a steamer to New York, but despite this auspicious start for the record-making year these new steamship companies were not yet able to give a line service of the regularity afforded by the weekly packets.

During 1838-39 their service was irregular, some of them being taken off entirely during the winter. In the words of a writer in *Chambers' Journal* (xv., 390): "From the absence of method in the departure of the several steamers, arising principally, perhaps, from the rivalry and non-accommodating spirit more or less characteristic of all competing companies, there was wanting that faultless regularity in the despatch or receipt of intelligence, which, whether in matters of politics or commercial information, is of the first importance."

The British Government also recognized this, along with the fact that the steamer was capable of regular line service, and in October, 1838, six months after the crossing of the *Sirius* and *Great Western*, advertised for bids for a fortnightly steam service from Liverpool to the United States via

Halifax. The bid of the Cunard Company, of Halifax and Liverpool, at about \$15,000 per voyage, was accepted, and on the 4th of July, 1840, the *Brittania*, a wooden paddle-wheel steamer of eight knots per hour, sailed under this contract from Liverpool for Boston, via Halifax. This is the date of the founding of line traffic by steamer across the Atlantic following a regularly maintained schedule that survived in winter and summer and calm and storm.

It should be noted that the introduction of steam made no revolution in the form of service by ocean carriers. It simply gave a new and improved tool for the old work. The line traffic was already established and the Cunards, with their steamers, merely substituted the new type of vessel in the north Atlantic service. It was merely a better line, that was all. The packet lines had taken the passengers, mail, and fast freight from the occasional sailing vessel. Now the steamer, faster than the packet, took from it the mail and the freight and the passengers possessing the highest ability to pay.

From that day to this there has been nothing new in the sea service except continuous and rapid improvement of the then existing services and the substitution of new types of vessels for the obsolete.

CHAPTER VI

LINE TRAFFIC AND ITS EXTENSION

THE British Government, which had been the pioneer founder of steamship lines in 1822, did so because private citizens did not seem to be able to fill the need. By 1838 the government was able to hand some of the work over to private firms and the first regular transatlantic line, the result of the British mail contract, was really a subsidized line. Without such aid a transatlantic line in the period of 1840 to 1860 was in a precarious situation, as witnessed by the speedy failure of most of those attempted during the period.

The Cunard, starting with a strong subsidy and backed by the support of the government, kept steadily on, as also did the Inman Line, which started ten years after the Cunards, and after 1856 shared the mail contracts with them. By

¹ References: *Westminster Review*, ci., 368; *Chambers' Journal*, xv., 392; *Hunt's Merchants' Magazine*, xvii., 358; *Lindsay's History of Merchant Shipping*, iv., 224; *Westminster Review*, ci., 367; *Fry's History of North Atlantic Steam Navigation*; *Wheelwright's Pacific Steam Navigation*; *Hunt's Merchants' Magazine*, xxix., 116; *Lindsay's History of Merchant Shipping*, iv., 151-6; *Chambers' Journal*, xxii., 189; *Journal of the Society of Arts*, viii., 164; *Scribner's Magazine*, lxx., 156; *Living Age*, clxv., 784; *Scribner's Magazine*, x., 267.

1861 there had been twelve distinct attempts at steam connection between United States and England, and only these two had survived, although the second Glasgow line had then been running five years.

Between 1840 and 1850 the old packet lines were as numerous and as fast as ever, and they occasionally beat the Cunard steamers, even when that line had been fifteen years running, but these performances were unusual and far from the average. The Cunarders had their own way with mail, with the express freight which paid \$36 per ton, and also with those passengers who could afford a costly journey, for the charges were much above the packet fares. During this decade the steamers carried only first and second class passengers, although the third class, then as now, made up the bulk of the travel and was very profitable. All of this class, from necessity, still travelled in the packets, which were on the whole well able to compete with the steamer lines and were effectively doing so, as was proved by the repeated failure of steamer lines during the period 1840-1860. Up to 1850 the steamer certainly could not have held its own, without the aid of the subsidy. The decade 1850-1860 witnessed the real establishment of an economically self-sustaining ocean steamship line traffic on the Atlantic.

The full list of the failures in this transition period need not be enumerated here, but at least four American attempts of the period are worthy of attention.

The success of the Cunard steamers was a great blow to American pride. Our newspapers had for decades been rejoicing in no moderate terms over the triumphs upon the sea that had been won by our world-famed packets and clippers. Then the British line steamers sailed into our ports and the speed records were held by the other side. In 1847 an attempt to win back these laurels was made by an American corporation, the Ocean Steam Navigation Company, which started the first of its two steamers, *Washington* and *Hermann*, to Bremen via Southampton (Cowes) on June 1st. But it was counted a failure because the Cunard steamers made from two to four days better time. The American Government mail payment was \$200,000 per year, but the British authorities discriminated against the American-borne mail. The city of Southampton gave the line no welcome and it was continued only a short time.

While this line was leading its cheerless existence another of similar performance but longer life began operations. An American company, the New York & Havre Steam Navigation Company, organized in 1848, sent its first steamer, the *Franklin*, in 1850; a second steamer was put on the next year and the company with difficulty managed to maintain a two-boat service until the outbreak of the Civil War. The gap was thereafter filled by the French Transatlantic Company, founded in 1860.

But this line to France did not even pretend to

be in the Cunard record-breaking class. The failure of the one American attempt in this direction goaded the nation to more determined efforts. The idea of naval dependence was brought before the public mind by the carrying of all steamer mail by the British. The packets were recognized as useless for this race. The nation was stirred and a subsidy was granted to E. K. Collins, previously mentioned as owner of a line of packets running from New York to Liverpool. He contracted for twenty voyages a year and was to receive \$19,250 per voyage; later it was raised to \$33,000, or \$858,000 per year. No pains were spared in the effort to beat the British. The national spirit was shown by contractors, who assisted in the enterprise by delivering to Mr. Collins at cost.

In 1850 the Americans were ready. Mr. Collins sold his packet ships and launched his fortune on the sea in his great new wooden paddle-wheel steamers, having the unheard-of boiler pressure of thirteen lbs. per sq. in. This race between Britain and America was a world event and Mr. Collins beat the Cunards. He beat them once and beat them regularly, the average difference in time of voyage for the two lines in 1851 being seven hours going east and eighteen hours going west; the annual average time of the Collins steamers for that year being a fraction over eleven days and the Cunard slightly over twelve days. It is interesting to note that in the ninety-six trips made by these two lines between New York

and Liverpool that year they carried only 8,268 passengers, an average of but eighty-six per trip. They were almost evenly divided, but the smallness of the number will help to explain the lamentable failure of the Collins Line a few years later.

This competition was in more than speed. It was an inroad upon the Cunard's monopoly. Upon the opening of the Collins service the steamship freight rate fell from £7 10s. to £4—a rate which to-day would seem like the most heavenly kind of manna to the owners of ocean greyhounds.

In December of 1850, the same year that the Collins Line began, the Inman Line (British) established a fortnightly service between Liverpool and Philadelphia, and made the innovation of giving full and complete competition with the clipper ships by providing for third-class passengers. This was a popular move which was copied three years later by the Cunard Line. The Collins Line still represented the strictly express type of service built for speed, at which it succeeded. It thereby added great laurels to the American flag and name, but it netted only losses to the stockholders. In 1854 one of their steamers, the *Arctic*, was lost in collision on the Grand Banks. Two years later, the *Pacific* disappeared at sea with Mr. Collins's wife and two children on board. Then, even worse for the fate of the line, the great subsidy upon which it had rested was withdrawn—due, some say, to the jealousies of Boston, Philadelphia, and Baltimore, and to the business jealousies of the clipper ship

owners, who made a combination in Congress which killed the Collins subsidy, and this promptly killed the Collins Line. It made its last voyage in 1858. During the eight years of its brilliant but unfortunate career the passenger traffic had increased fivefold.

The experience of this line with the subsidy shows how unstable the company is that depends upon the repeated votes of a legislature dominated by party politics and not dominated by a fetish-like dependence on sea power and sea connections. The government support of the Cunard Line was never violently withdrawn.

Upon the failure of the Collins Line, the Inman Line swung its Philadelphia service to New York and took the Collins dates and kept up the bi-weekly service. In 1860 it became weekly, 1863 three in two weeks, and in 1866 semi-weekly in summer.

Another sturdy American, Vanderbilt, tried to follow in the footsteps of Collins and get a subsidy for a route to the continent. He labored hard in this cause and, failing to get a subsidy, he determined to put on steamers anyhow. In 1855 he began service from New York to Havre and Southampton. The next year he extended it to Bremen and in 1858 he got the contract for carrying the mail and was paid the amount of the actual postage receipts. In 1861 he gave it up and sold most of his steamers to go to the Pacific, and retired from the Atlantic carrying trade.

The year 1856 witnessed the founding of a



Adriatic—Last of the Collins Fleet

line, the second attempt, which was probably more nearly a freight line than any other of the period—the Anchor Line from Glasgow to New York. This service, with its greater dependence upon freight, marks another stage in the progress of the development of line traffic and of the replacing of sail by steam lines. From 1850 until 1870 this replacing continued steadily, and with increasing speed. The new lines were usually steam lines, and the old lines gradually changed their vessels from sail to steam. The Hamburg-American Packet Company, incorporated in 1847, had sailing vessels only, for nine years, and then in 1856 a screw steamer was added. Others followed and in 1860 the nine remaining sailing vessels on the line were replaced by four new steamers and fortnightly sailings to New York were inaugurated.

The old Black Ball Line, the pioneer between New York and Liverpool, the pioneer of all the Atlantic lines, had twenty-five fine sailing ships in 1850. But the competition of the new lines of steamers was such that they had to be merged shortly into the Guion Line, and this company in 1863 made an arrangement with the Cunard Line to carry some of its passengers in the Cunard steamers. In 1866 the Guions added their first steamer and in eight years more they had a steam fleet. The decade 1860-1870 marked the practical disappearance of the old transatlantic packet-ship lines and their final replacement by lines of steamers. The last days of the packet lines

found them carrying emigrants, while the first and second cabin passengers were taken by the steamers. The White Star Line was an example of this transformation of an established line traffic from one type of vessel to another. The present service had its origin in the purchase of a sailing vessel fleet in 1870, their immediate transference to another service, and their replacement by steam vessels.

The summer of 1856 saw the establishment of the subsidized Allan Line steamers from Montreal to Liverpool by an old firm of merchants and sailing ship owners who had been running their vessels in the Montreal-Glasgow trade for a quarter of a century. The first ocean steamer to reach Montreal came in 1853, and for two years there was a poor, irregular service; but it was so irregular that the government cancelled its mail contract, and the next effort was the more liberally paid Allan Line, which succeeded and maintains itself to the present day.

In 1866, the North German Lloyd Line from New York to Bremen, which had been founded with steamers in 1858, increased its service to once a week. Between 1866-1870 it succeeded in beating out three attempts of New York capitalists headed by Henry Ruger, who tried to establish competitive service to Bremen and to Scandinavian ports. In 1869 the Bremen company started a steam service to New Orleans. The next year the New Orleans cotton merchants, who had been depending on sail for their direct

shipments to Europe, formed the Mississippi and Dominion Steamship Company, which ran steamers from New Orleans to Liverpool in winter, when the cotton season was on, and in summer, when the St. Lawrence was open, they went to Quebec and Montreal. This New Orleans service was not long-lived. It was shifted to the New England and Canadian ports and there became known as the Dominion Line.

The period of 1840-1860, that of the founding of steam line traffic on the north Atlantic, was also the period of its establishment in nearly all parts of the globe.

It is rather remarkable that the backward, warring, and disturbed countries on the west coast of South America should have had upon the Pacific Ocean one of the earliest of oceanic steamship lines, but there were peculiar reasons for this. The topography of the coast made land travel to any distance absolutely impracticable. The sea was the only highway, and here the peculiarities of the winds were such that sailing vessel communication was exceedingly slow and tedious. William Wheelwright, an enterprising American, who had spent some years on those coasts as consul, appreciated the situation and went to Europe to raise money for a steamship line. His pamphlet stated that "by steam many voyages would be performed in forty or fifty hours which now occupy twenty or twenty-five days." The explanation of these disparities he showed to be a combination of southeastern

trades and prevailing westerly winds to the south of them which made it necessary for a sailing vessel bound on a mere coasting journey to go far out into the Pacific to get the requisite winds. Mr. Wheelwright secured his financial support and the first two steamers reached their station in 1840. In 1852, there was a bi-monthly service from Valparaiso to Panama, where it connected with the Atlantic navigation. In 1865 the service was extended around the southern end of the continent to the River Plate and the Falkland Islands, and two years later regular steam connection was had with England through the Straits of Magellan.

At first Wheelwright's English line, the Pacific Steam Navigation Company, had great difficulty to secure the necessary fuel, which had to be brought around the Horn in sailing vessels. In this respect it was identical with the Pacific Mail Steamship Company, an American company, giving service from Panama northward.

The acquisition of California gave the United States an exceedingly remote possession (there is no colony anywhere so really remote to-day). With this territory some kind of connection was imperative and the administration, which was so liberal in helping the Collins Line to beat the British, contracted with the Pacific Mail Steamship Company, formed in 1847, for a service from Panama to Astoria and from New York, Charleston, and New Orleans to Havana, from which port the company already had a connecting line

to Chagres (Colon), thus completing the connection between the coasts. The first steamer left New York October 6, 1848, and the company soon had six of the finest steamships afloat. The speed from Panama to San Francisco was more than ten miles per hour. Thus the United States had line traffic of first-class character connecting its remote coasts before it had a good American line to Europe. At Panama it connected with the Pacific Steam Navigation Company, giving service to Peru and Chile, so that before the middle of the century the Pacific had at least 5,000 miles continuous steam line traffic.

The success of the United States Government's line on the Pacific was far more enduring, though somewhat less brilliant, than that of the Collins Line. Its steamers had not reached the coast before the gold fever set rovers from all over the world flying toward California. Despite the troubles of 'round-the-Horn coal, the company, dropped by chance in the golden stream, reaped a golden harvest, and when railroad competition began shortly after 1870 it was by all means the largest American maritime organization. It had thirty-three fine steamships, capable of holding 74,000 tons of cargo and many passengers. It served forty-seven Pacific and three Atlantic ports and had thirty-five agencies in the Orient, United States, Spanish-America, and Europe. On January 1, 1867, it had begun a monthly service to the Orient, terminating at Hong Kong. This was soon made a fortnightly service and a branch

established at Yokohama to skirt the Japanese inland sea and go on to Shanghai. There was an express steamer from San Francisco every two weeks, connecting with the New York steamer via the Panama railway. There was also an accommodation steamer which attended to the local needs of the coast of Mexico and Central America, and at Panama connection was had, not only with New York, but also with lines to Hamburg, Havre, Southampton, and Liverpool.

England pushed out her steamer lines to her colonies about as quickly as she had to America. "In sixteen years after the crossing of the north Atlantic, regular lines of steamships traverse both the north and south Atlantic, the Indian Ocean, the Arabian Sea, the Mediterranean Sea," etc.

The same burst of confidence and mechanical enthusiasm that started companies to building steamers in 1836 for the north Atlantic, sent two steamers out to India in 1836 and 1837 to ply between Bombay and Suez. This line soon became a link in one of the largest and certainly the oldest steamship companies in the world. The present Peninsular & Oriental Company started as the London & Dublin Steam Navigation Company, running two steamboats about 1824. This enlarged in 1837 into a line running steamboats to the (Iberian) Peninsula, hence the name Peninsular. Before this innovation, the sailing vessel time from London to Lisbon had been three weeks. As the next step in the development of



Armadale Castle—Fast Passenger Service, England to the Cape

its service and its name, the Peninsular Company took a subsidy in 1842 to carry the mail in steamers between Alexandria and London. At Alexandria it connected first by camels and then by four-horse vans with the Suez Line to India—a service which has been maintained to the present day and extended to the east and southeast, taking in China and Australia. The Australian Line came in 1873, after the opening of the Suez canal permitted the abandoning of the bothersome shifting at Suez and substitution for it of a continuous steamer voyage.

Australia appears to have first had line traffic connection with the mother country in 1850, when a lively sailing vessel traffic was deemed of enough importance to be reduced to a schedule. In 1852, the desire for greater regularity of mail brought about a contract for the carrying of the mail in steamers. The first steamer sailed June 5, 1852, and between that and 1854 several others were successfully added.

In the fifties, the South African traffic was carried in sailing vessels with the exception of such service as the first Australian steamers rendered. In 1857, the Union Steamship Company, which after fifty years still dominates the the South African situation, entered into a contract to carry the British mails. In 1872 the Castle Line was founded. In 1873 it participated in the mail contract, and in 1876 it shared equally and helped maintain the schedule.

The pioneer in the service from England to

eastern South America was the Royal Mail Steam Packet Company, which started its first steamer from Falmouth in 1842 and has since built up a great service and met the rivalry of many companies.

It appears that the Atlantic Ocean can scarcely be called the pioneer in the establishing of ocean steam line traffic, although it certainly had been in the sailing traffic. Experiments were being made in all oceans at the same time, and the period 1840-1857 is the epoch of the establishment of steam line traffic to all important quarters of the globe. There were lines on the north Atlantic, fast, fine, and competing. These were the backbone of the world's connection. At New York the American Pacific Mail Line gave connection through Panama with the Pacific coasts of both Americas. The Cunard Line had connecting lines here to Bermuda and West Indies.

On the other end of the Atlantic trunk, the English lines gave quick access to the Mediterranean and India, to South Africa and Australia. The world was connected. The rest is a story of improvement.



Oregon—Pioneer of the White Star Fleet, 1871

CHAPTER VII.

RECENT DEVELOPMENTS IN LINE TRAFFIC.

THE year 1870 may be put down as the fourth important date in the history of line traffic in modern commerce: 1816 was its real transatlantic beginning; the year 1840 had the first steamship line; 1850 marked the advance of steamship lines to economic independence, as evidenced by their severe competition with each other and with the packet lines and by the carrying of steerage passengers. Eighteen hundred and seventy may be taken as a kind of focal date rather than as an exact date, marking the virtual disappearance of the packet lines and a great advance in steamer lines. It is true that there was at least one Atlantic sailing packet line running to New York as late as 1873 and one to Montreal in 1875, but 1870 may be safely taken as the date of their virtual disappearance—a process which had gone forward by great strides during the preceding decade.

The period central in 1870 and ending in 1873 was one of great prosperity throughout the commercial world. America was feverishly building railroads, transcontinental and otherwise. Eu-

rope was also on a boom and the response in ocean transportation was shown by the rapid establishment of new lines of the now thoroughly proven ocean steamers.

We had new services to the continent. In 1866, '67, and '68 the firm of Ruger Bros., of New York, established under different combinations line services to Bremen, and in 1869 they founded one to Copenhagen, Stettin, and Christianssand, but all of these failed through the competition of the North German Lloyd. This strong company put on steam service from its home port to Baltimore in 1868, to New Orleans in 1869. In 1870 the Mississippi and Dominion Company started steamers from New Orleans to Liverpool. In 1868 the Boston & American Steamship Company started a steam service to Liverpool, but it did not survive many years.

In 1871 came the establishment of the American Line, running from Philadelphia to Liverpool in connection with the Pennsylvania railroad. In 1872 there came a line from New York to Bristol, and the next year another from New York to Cardiff. In 1872 the Holland-America Line started its service from Amsterdam and Rotterdam to New York. In 1873 also the State Line was started between New York and Glasgow and the Red Star Line between Philadelphia and Antwerp. But the most significant and epoch-making member of this group of new services was the White Star Line. The company back of this line had for several years been planning innova-

tions and in 1871 they launched and sailed from Liverpool to New York their first steamer, the *Oceanic*—larger, longer, faster, more luxurious than anything afloat and with improvements in design that had to be copied in all passenger ships thenceforward. Before that time the steamer had merely continued the practice of the sailers and they the practice of the merchant ships of the ages. These vessels had put the crew in the forecastle and more elegant quarters for captain, officers, or passengers were erected in the stern of the ship. So in the steamer; but the White Star *Oceanic* ended all this for the better class passengers by appearing with cabins amidships, where the motion in all directions is minimized in the same way that there is little motion in that part of a seesaw-board that rests on the fulcrum.

The period of prosperity and boom that was central in 1870 came to a sudden termination in the "crash" of 1873, the start of a long industrial depression which from 1874 to 1878 made great hardship and loss among ocean carriers. Here as on land many smaller and weaker companies disappeared and were absorbed by their stronger rivals.

From 1870 onward has been a period in which line traffic has had few if any epoch-making dates. It has proceeded gradually by improvements in kind of service rendered, in the number of lines, and in the portion of the globe that they cover and connect.

In 1874 there was a strictly freight steamship line established between New York and Bristol. A predecessor in this direction had been the National Steam Navigation Company, which was formed in England during the Civil War to carry on trade with the South upon the return of peace. This was so long deferred that the company in 1863 opened service between Liverpool and New York with their large slow steamers, which had been intended to carry on a trade which until that time was entirely served by sail. These steamers were devoted chiefly to freight and emigrants, a very small number of cabin passengers being carried. The strictly freight line of 1874 has since been multiplied until the number almost or quite equals that of the lines carrying passengers also.

The greater part of these strictly freight lines take their departure from the smaller ports where railroad and passenger accommodations are meagre and where the distance to Europe is greater than from New York, so that there is small reason for a passenger to desire the longer voyage. The steamship owners, therefore, find no inducement to cater to the few passengers whom they might get and whom they could scarcely carry at a profit. As a counterpart to that passengerless traffic, we have within the past fifteen years had the freightless express steamers from New York in which the combined requirements of large crew and extensive bunkers and machinery for fast speed and large passenger accommodation have



Celtic—Fastest Passenger Service of a Generation Ago



Baltic—Passenger Service at Less than Express Speed

practically eliminated freight-carrying. At the present time such steamers number about a score.

In 1876 the same National Steam Navigation Company that gave so little attention to passengers was the first to carry fresh meat from America to Europe, and the next year they were also the pioneers in the transport of live cattle. Both of these improvements have been widely copied and have become important factors in ocean traffic. The refrigerated chamber has become of wide usefulness in carrying meat not only across the Atlantic, but practically around the world. For many years there have been lines of steamers devoted largely to carrying frozen meat to Great Britain from Argentine Republic, from Australia, and from New Zealand. The artificially cooled chamber is also in use over the routes from Australia, South Africa, and America to Europe for the transport of dairy produce and fresh fruits, and in all of these commodities the trade is growing rapidly.

In the period since 1870 connections have been established between the leading American ports and every European country of importance. In 1879 the Thingvalla Line from Copenhagen sent its ships to New York. French lines have come from Bordeaux and Marseilles. Spanish and Portuguese lines have been established. The Italian line has come, and in 1891 even the German Lloyd put on a New York-Italian service. Then came lines to the Adriatic and in 1899 to Constantinople.

This process of multiplication of lines went on so rapidly that by 1890 the port of New York alone had no less than twenty-nine steamship lines to Europe, of which six ran express steamers, twenty-three carried both freight and passengers, and six freight only.¹ Of these lines, twelve had sailings weekly or oftener and employed a total of eighty-four steamships.

The speed, frequency, and excellence of the north Atlantic service centring at New York, but shared in no mean degree by Boston, Philadelphia, Portland, New Orleans, and Galveston, partially explains why there are but a small total number of steamship connections between America and other parts of the world, and it has innocently helped to call forth many a bitter American lament because the best, the quickest and cheapest and the usual way to get from America to many parts of the world was via Europe. Typical of these laments is that of Senator Frye of Maine, in his speech in the United States Senate April 30 and May 1, 1884:

"A manufacturing concern in my city a few years ago undertook to sell cotton goods in Rio Janeiro. They forwarded them to New York, where they were shipped on an English steamer and carried in her to Rio Janeiro, and the mails went the same way."

After citing figures for Spanish-American trade and saying that England, France and Germany have nearly three-fourths of this trade, the Senator

¹ *Scribner's Magazine*, ix., 411.



New York—Fastest Passenger Service of Twenty Years Ago

continued: "Why do these countries have three-fourths of all that immense trade in supplying these people and in taking supplies from them for their home market? For no assignable reason other than the fact that those countries have regularly established lines of steamers to the South American ports, speedy, prompt and reliable, while we have, comparatively speaking none."

The answer to the Senator's eloquent lament is not far to seek. New York was then and is now the chief seaport assembling-point, as was Liverpool, for the trade of a continent. These are great metropolises. Between them plies the very fastest and finest and most continuous ocean service. If you or your freight are anywhere near either of these ports, the quickest way to reach the other is to go to the nearest one and take the fast steamer for the other. It is just like the travel on land. Between New York and Philadelphia there is a magnificent passenger train service. Those cities are only ninety miles apart, but if a man lives thirty-five miles north of New York and desires to go to a place thirty-five miles north of Philadelphia he will probably find that the quickest and even the cheapest way for him to make the journey is to pass through both of the great cities and thus take advantage of the fast trains between them, and of the radial organization of local routes to each city, although this roundabout way nearly doubles the length of his journey.

In identical fashion the North Atlantic trunk route served as a magnet to draw to itself the trade between all parts of the old world and all ports of the new world, just as the trunk railroads between Philadelphia and New York command the travel of a hundred towns adjacent to each metropolis. Each metropolis has good connection with its hundred towns and with the other metropolis.

Similarly Europe and especially Liverpool has developed connections with all parts of the old world and incidentally with that part of the new world called South America. Europe was the pioneer in getting these services instead of the United States, because those parts of the world were her economic dependencies and she was dependent on them while America was not. Furthermore, these countries are all cultural dependencies of Europe: South America is Latin, South Africa and Australia are British, Asia is sprinkled with European possessions, and twenty-five years ago as now was a great European market. With emigrants, with mail, with colonial ambitions, with manufactured export and raw import, Europe had need of connection with the ends of the earth and where the need was the lines promptly came. Some of them were subsidized, but most of them were not. Where there is reciprocal want, with permission to exchange, there will the lines be also. They will come like cabbies for a "fare."

In the meantime we did not have these strong



Minneapolis—Atlantic Transport Line. Passengers, Cargo and Cattle

needs to communicate with Africa, Asia, South America, and the isles of the sea. We were showering wheat, corn, cotton, and meat into Europe by the millions of tons. Manufactures came back over the route, with millions of European emigrants and hundreds of thousands of returning American tourists. Here, to meet these heaviest needs, arose the world's fastest steamship lines. By their connection at Liverpool, New York was but a little farther from Asia and Africa and South America than was Liverpool. In point of time, New York was often no farther away by this devious route than she would have been by a direct one, because the small American demand for direct service would have sufficed only to command slow steamers. At the same time the livelier demand and the subsidies paid for connection from Europe had resulted in faster steamers from England, France, and Germany, and these, connecting with the Atlantic racers, gave New York as speedy connection with the far corners of the seas as it was possible for her to have, unless her direct lines could be in receipt of other income than traffic earnings—namely, subsidies.

Nor was this roundabout connection necessarily an expensive connection. We still had the charter vessels, both steam and sail, in great numbers plying wherever there was demand for full cargo traffic, or wherever any merchant could load a ship, as they were continually doing. It was only a comparatively small traffic, the traffic in

manufactured goods that sought the route to market via Europe, and the freights were rarely high for the north Atlantic end of the trip. The steamers that carried the wheat, corn, and cotton eastward were always half empty coming west across the Atlantic, and the stray products of any non-European clime were gladly taken at a reasonable rate. It was furthermore often the case that the large New York passenger steamers were at certain seasons so pressed even for eastbound freight that they took it at low rates across to Liverpool or Hamburg or Antwerp, whence it could easily go anywhere.

An even more remarkable situation has arisen frequently in the recent export trade from New York. It has been cheaper for the American shipper to have his goods forwarded via Liverpool to Australia or Africa than it was for the Englishman to have his goods go out on the same steamer. This anomalous condition has resulted from rate wars on direct lines from New York at a time when there were no rate wars from Europe, and the transshipping lines have had to put the rate via Liverpool down to meet the direct rate from New York.

The transshipping of freight due to the excellence of the north Atlantic steamer lines is not a monopoly of Liverpool or of the ports on the European end. New York also has a share of the traffic to those parts of the world where New York's connections are superior to those of Europe, for then it is advantageous for European shippers

to transship at New York. The commercial bond between the north Atlantic ports of the United States and the Gulf, Caribbean, and West Indian ports is stronger than that of those regions with Europe. We feed them and buy their produce; therefore we have more lines to them than Europe has, and the quickest and best way to and from many of these ports is via New York. As early as 1891 there were eighteen lines of steamers with scores of vessels plying from New York to these waters, and European forwarders have for a decade been advertising the speed and excellence of the New York gateway for European goods to the West Indies, for they go as far as New York on the fastest carriers of freight. The backers of a British line to Colon complained of the hardship resulting from the fact that it was four days quicker to England from Colon via New York than by direct steamer.

In the period since 1890 there have grown up steamer lines, freight steamers in practically every case, between New York and all important quarters of the globe, to wit, the Orient, Australia, South Africa, and South America, East and West.

Just when line traffic began with these regions it would be hard to say. In practically every case it has come about gradually and at the hands of some firm that began as a mercantile house of the good old style of 1800. There have been a few large American merchant firms doing business in all these regions. They would load a sailing

vessel back in 1850 or 1860 just as Girard did fifty years before and send her out to their agents or branch house at Valparaiso, Buenos Ayres, Cape Town, Melbourne, or Shanghai. Some time later they would send another. They would occasionally take such freight as they could get for other shippers, and if trade was good there would be more vessels than when it was not good. When steam vessels became cheap enough to use, they were occasionally employed, and the despatchings of some firms that were dignified by the name of lines, in the prosperity of one year, were not worthy of mention in the depression of the next. In 1891¹ the depression in Argentine Republic due to the Baring failure had disorganized the New York shipping trade. Before that Messrs. Norton & Sons, of New York, and other firms had been sending from New York four to twelve steamers a year. They kept their services alive and for a decade have been running lines of slow chartered freight steamers. They have of late greatly improved.

The question of just what constitutes line traffic is not always easy to decide. In 1891 two New York firms were receiving about twenty-five steamers a year chiefly loaded with China and Japan tea. These same vessels went out to any port of the world to which their owners could be so fortunate as to charter them. At the same time Edward Perry & Co. were despatching about one steamer a month to east Asia. They had

¹ *Scribner's Magazine*, x., 595.



Satsuna—Barber & Co. Typical of the Charter Fleet

the habit of sending it when they got enough freight, and, while the firm were freight-carriers, they could scarcely be called the operators of a line, for a line has a schedule. The *Railroad Gazette* credits the first "line" to east Asia to the year 1899.

The connections between the United States and Australia are typical of the development above described. In 1853 two New York firms, that had been despatching vessels for themselves and such others as desired to participate, agreed to take turns in sending out their sailing vessels. In 1878 a Boston firm began to send out sailing vessels regularly and in 1884 it began to alternate with the two New York firms. In 1890 a fourth company was added to the list of turn-takers. In 1898 an English firm put on a line of steamers from New York outward, and the four American firms which had been sending sailing vessels only now united to form a rival steamship line. There soon came a third steamship line, European-owned, and line traffic, on a modern basis but carrying freight only, was thoroughly established.

The same decade, 1890-1900, that saw the phenomenal expansion of American exports and the establishment of line traffic to the Orient and to Australia also witnessed the establishment of two semi-merchant steamship lines from New York to the west coast of South America. During this same period also a transformation occurred in the South African trade identical with that which has just been described in the Australian trade.

The last few years in this decade were important ones in the establishment of steamer lines in the place of the old sailing vessels despatched occasionally. In 1899 the consolidated fleet of sailing vessels engaged in the American coasting trade around Cape Horn were sold and replaced by steamers which plied regularly in the long service between New York, San Francisco, Puget Sound, and Hawaii until the opening of the Tehuantepec railway, in 1907, give them a more expeditious way of getting their freight from ocean to ocean.

The line traffic on the Pacific has had a more orderly and normal development than upon the Atlantic. It was well established to the Orient upon the opening of the first transcontinental railroad, and with the building of a new railroad line to each fresh port there has followed the establishment of a new steamship line to the Orient. These will be referred to more fully in the chapter on the railway steamship line.

The evolving ocean service has passed from the individual vessel, operated by its owner in the merchant-carrier stage, to the common carrier with a world-embracing system. This evolution has been going on during the past century and it can also be seen to-day in all its stages. The trading schooner picks its way through Polynesia and along the shores of many half-civilized lands. The private owner still fills his American coasting vessel, sometimes a steamer, with his own lumber and sends it off to market. The oil-producer loads his own cargoes of oil in his own ships for



Egypt, National Line—Flush-deck Passenger Steamer of the Seventies



Texan—American-Hawaiian Line via Tehuantepec Railway

export to foreign countries. A single firm in recent years has sent a full ship-load of locomotives of its own manufacture half-way round the world for delivery. The west South American and Australian trade of New York was, until recent years, carried on chiefly by merchants who loaded their own vessels¹; sometimes filling them partly with the cargo of other shippers and sometimes entirely with a cargo of their own consignments. The cheapening of steam power since 1890 has caused the introduction of steamers on these routes between 1890 and 1900, and the original mercantile firms, which began years ago by sending out their own sailing vessels, turned to the running of lines of steamers. They are now being competed with in some cases by other lines which are public carriers only, and the continuance of the merchant as a carrier in these services is something of a relic in the world's commerce. In time it is likely to disappear here, as in Great Britain, before the more specialized organization in which the shipping firm devotes itself to the business of carrying, and leaves the mercantile operations to other firms. This specialization is the method of the larger commerce as we now see it in the trade between America and Europe. The same change is foreshadowed in these old-fashioned services as shown in the recent reorganization of the New York-Australian carriers, which took place in the following manner:

¹ The fact that these vessels were often chartered does not in any way affect the service.

Each of four different merchant firms had been for years running sailing vessels to Australasia on its own account. When British steamship companies offered rival service as public carriers, the four firms united and formed a steamship company, also a public carrier. It would be easy for them to sell out the steamship business¹ and continue as merchants only, thus completing the advance of the public carrier for general traffic in this service as it has been completed in so many before.

It should not be overlooked that there yet exists along with all the services mentioned above a vast traffic of private character—the so-called tramp or charter traffic, in which any individual, who so desires, loads a ship and sends her wherever his interests dictate. Thousands of vessels are hired by any one who can ship a full cargo. Such charter traffic is limited by this fact to cheap and bulky materials. It is also of declining importance in the greatest ports, because in these the line steamers suffice. But for small and out-of-the-way ports, shipping bulky raw produce, the charter or independent vessel will be an important factor for many decades to come. The vessel will in the majority of cases be hired for the particular cargo in question.

It is easy to let an account of the nineteenth- and twentieth-century line traffic with its splen-

¹ The vessels themselves are chartered, but the business and good-will are valuable.

did developments cause one to underestimate the present importance of the unobtrusive eighteenth-century survival, the single chartered vessel—the sea beast of burden. According to Mr. Walter Runciman, Jr., M.P., a British ship-owner of Newcastle-on-Tyne, in a letter to the North of England Ship Owners' Association,¹ there were at the end of 1901 the following totals of British shipping: sailing vessels 7,227, steamships 8,147, and of the latter he estimated that 1,247 were liners and 6,900 tramps for hire. "Excepting the small Scandinavian fleets and a few continental firms the world tramp shipping is British . . . an investment of over £120,000,000 of genuine unwatered capital. . . . They do the carriage not only of British and colonial trade but, so far as tramp shipping is concerned, eighty to ninety per cent. of foreign trade as well. . . . Silent and unseen and unknown of man they are really the backbone of our shipping business."² This statement implies that the German, French, Italian, Japanese, and American merchant navies are largely devoted to line traffic. The sailing vessels were almost entirely in the charter class.

¹ *Syren and Shipping*, July 8, 1903.

² Editorial in *Fairplay*, July 5, 1902, p. 886.

CHAPTER VIII.

THE NORMAL TYPE OF STEAMSHIP LINE ORGANIZATION.

It has been stated that nothing will so prolong the life of a person advanced in years as an annuity. The even and absolutely dependable income gives a certainty, repose, and peace that produce a new lease of life. A similar dependable income is about as wholesome and as important for the healthy development of a business corporation as for the individual. The transportation business is uncertain in the amount of its business and its income, so much so that any change tending toward steadiness of business is eagerly sought by the managers of these enterprises. In this fact lies the explanation of much of the recent growth and development of transportation units.

It is evident that a short railroad serving a small territory, sharing the plenty resulting from good harvest, and want of the meagre harvest, has much less prospect of steady business than a larger road, serving more territory where local variations tend to be equalized. The strife for regular freights has another phase in the terminal connections which can be made by the company.

It is again fortunate if some other company will promptly carry the freight away from its terminal and pass it on to other territories. It is better yet if some second company delivers goods at its termini for carriage over its lines.

In obedience of these economic forces, transportation corporations may be said to have a law of expansion. Within limits of easy control, the larger they are and the wider their territory, the safer and more reliable is their business. This expansion tends to go on until the carrying unit embraces an economic unit, so that there are no commercial wants of the people along the lines that cannot easily be supplied by the great carrier. The people want the ship, and desire to receive goods on through bill of lading with prompt service. The carrier strives to furnish these opportunities. In response to this law the past forty years have been a period of astounding consolidation and enlargement of the units of management in transportation by land and by sea. Single steamship companies regularly circumnavigate the globe. This has been far eclipsed by the actual labor and capital involved in the operations of railroads which have performed the greater work of crossing an entire continent and establishing subsidiary steamship lines. Connecting railroad lines have been brought closer by through-freight agreements, by the leases of long term, 99 or 999 years, and by outright purchase. Great trunk routes have thus been established, rival trunk lines bought entirely or controlled by majority

stock purchase, or by community of interest in which the same men are on several boards of managers so that mutual agreements prevail.

When the railroad was first introduced, people thought of the various roads as connections between certain towns, which was indeed their only early goal. During the past seventy years we have seen the railroad develop from a set of links connecting two or three semi-adjacent cities into vast systems consisting of trunk lines and many branches or feeders.

While we have long since learned to think of railroads as systems, we are still prone to think of steamship lines as doing what the early railroads did—connecting two places. This idea must be discarded. The law of growth among steamship lines works surely to the development of trunks and branches, a development which has already taken place, although the branches are fewer than upon railroads. The improvement of the steamer and the use of the ocean cable gave the needed regularity, dependableness, and knowledge for the organization of ocean commerce and transportation into a regular and systematic service akin to that of the railroad. The great ocean lines sail with precision and regularity. To supply these great lines with freight, their managers have been compelled to establish smaller lines to supply and distribute the necessary cargo. The largest transatlantic lines are, without exception, thus equipped at one or both of their termini. The North German Lloyd

and the Hamburg-American connect at their European ends with lines running to South America, east Asia, and other distant parts of the world. They also connect with smaller lines plying to the near-by European ports and with steamers on the German rivers. These two German companies carry the same system even further. Their trunk lines to East Asia are fed at Singapore and other eastern ports by lines of smaller German steamers which traverse the eastern archipelagoes and the Asiatic coasts and rivers, collecting cargo for the trunk line stations of the large steamers bound for Bremen or Hamburg, at which ports it is distributed by the European distributors referred to above or sent on to America by the transatlantic lines. The Wilson Line from New York to Hull connects in that city with an enormous fleet of small steamers which thread the coast of the North Sea and reach all ports of importance in Scandinavia and along the Baltic. Some of the other British transatlantic lines connect with British coasting lines and with the lines to Australia and other British colonies. The French and Italian lines are fed by fleets of Mediterranean coasters and transoceanic liners at Havre, Marseilles, and Genoa. The Cunard Line, giving a service from New York to Liverpool and from New York to southern Italy and Fiume, Austria, has a line connecting Liverpool and Fiume. These steamers call at more than twenty ports and gather freight which is to be transferred at the ends of the route to the next steamer bound

for America. Other examples of this systematic trunk and feeder development of ocean service might be mentioned; but they would show no feature differing from the development of the examples cited or from the railroad and its branches except that the ocean service of single companies at times circumnavigates the globe and covers a much wider scope of territory than any railroad system the world can ever have.

The world's greatest steamship company, the International Mercantile Marine, differs from the other giant organizations, such as the Hamburg-American, North German Lloyd, and Peninsular & Oriental, in that, while exceeding any of them in tonnage, it covers a smaller area with its services. This results from the fact that it was formed for a different object. The three European companies referred to are older, and were built up gradually, ship by ship, line by line, service by service, as the traffic grew and the service expanded to meet it. One improvement or extension of service to get freight demanded another to dispose of it. The Mercantile Marine Company grew differently. It was the last step in a series of consolidations of equals. The American Line had taken over the Inman Line in 1884. It had later taken over the Red Star Line and become the International Navigation Company. This company now consolidated with four other great lines for the purpose, not of extending service but of making living rates at a time when severe competition made general loss. Its genesis, there-



Kaiserin Auguste Victoria—Hamburg-American Fast Passenger Service

fore, differs profoundly from that of the other great companies.

In some respects the law compelling consolidation and the establishment of feeders works with stronger force among steamship lines than among railroads. The railroad runs through certain territory where it has scores of stations supplying it with traffic, and many of them are so situated that they control freight that can find no other suitable outlet. This much the railroad has beyond peradventure. The steamship line that serves one port, as many of them do, must find its freight there or nowhere, and in the port competition is free and the freight may go to any rival. If a line has some coasting lines bringing in freight, the situation is instantly different.

The company that runs a line on one route only is at the mercy of any local fluctuation in traffic. A strike even might spoil the profits of a quarter; so might a drought or any local uncontrollable disturbance. Then, too, there are seasons in nearly all trades during which the traffic is abundant and others in which it is scarce. Just after harvest time, wheat, corn, and cotton go forward in quantity and the trade falls away to small proportions as the next harvest approaches. The steamship company with many lines can have its annual work evened up by seasonal prosperity in one quarter as dullness comes in another. Instead of having ships half idle on its one dull route, it can shift them to the prosperous route. As the vessels get old and

antiquated for the finer routes they can be shifted to a slower and inferior route like outgrown clothes to the smaller brother. The greatest advantage, however, is the picking up of freight for the main lines, just as the branch roads feed a main trunk railroad.

All these forces are welding the ocean carriers into ever-growing systems. There are, of course, multitudes of small steamer lines as there are many small railroads, but there is a steady tendency toward their consolidation into well articulated groups.

The reading public has been thinking of steamship lines as lines, as entities, when really they are parts of systems, and many of the north Atlantic lines have from their inception been but an outreaching arm of a European system.

The North German Lloyd was formed in 1856-7 by the consolidation of nearly all the steamship lines, local and otherwise, in Bremen. Since 1827 there has been fairly regular sailing vessel traffic to New York carrying emigrants one way and cotton and tobacco the other. Now that nearly all the lines of the port, the assemblers and distributors of this trade, were consolidated, it was the most natural thing in the world for the company to reach out for the American traffic—and they reached again and again. In 1858 they started the steam service to New York and in 1866 it was made weekly; 1868 a line was sent to Baltimore, in 1869 to New Orleans, 1870 to the West Indies, 1875 to Brazil and Argentina,



Deutschland—Hamburg-American Line, Express Service

and so the company has gone on reaching out until with its partner, the Hamburg-American Company it practically covers the world. The strong hold it had in the local trade of Bremen and near-by waters enabled it to beat off the four American attempts to establish service to Bremen 1866-1870, as it had the previous one of 1858-1861.

The Hamburg-American Company, which in the minds of some may be thought of as a New York-Hamburg line, is really one of the leading factors in the carrying trade of all America, and of the old world as well. This one company dominates the metropolitan city of Hamburg and connects it with Montreal, Portland, Boston, New York, Philadelphia, Baltimore, Newport News, New Orleans, and Galveston in the eastern United States. It sends steamers to Mexico, Central America, Panama, Colombia, Venezuela, and the Lesser and Greater Antilles. They go to the Amazon, to the ports of central and south Brazil, to Uruguay and Argentine Republic, to Chili and Peru. In Europe they circumnavigate the British Isles, skirt the coast of France, Spain, Portugal, and Italy, to the head of the Adriatic; they go in the Baltic to Russia and Finland and Sweden, and out in the Atlantic to Iceland and North Cape and on to Arctic Spitzbergen. In Africa it touches at Alexandria and down the whole west coast as far as the mouth of the Congo. In Asia it serves Aden, the ports of Arabia, Persian Gulf, Ceylon, Calcutta, Straits Settlements, China, Korea, Siberia, Japan, and finally—and

possibly most remarkable of all—it sends steamers thence across the Pacific to Portland, Oregon—a grand total of fifty-seven services crossing every ocean, touching all continents and every geographic and commercial zone. Extensions are in contemplation or contracted for.

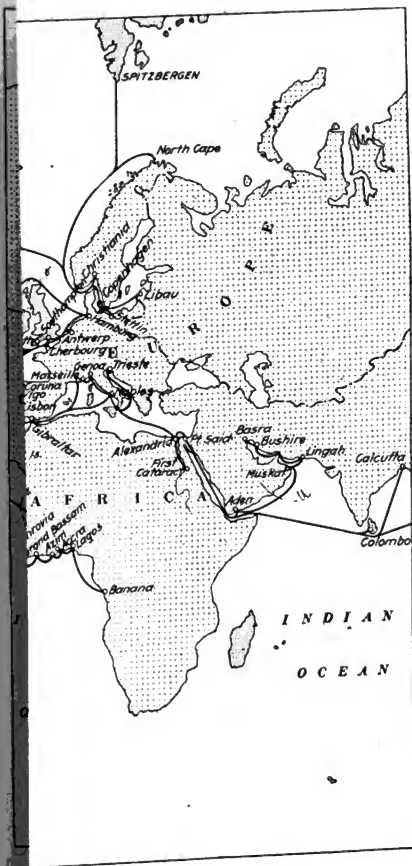
The illustrations accompanying this chapter show the more important of the Hamburg-American Company's ¹ sixty-eight lines and services—an example of equalized traffic through world organization—and also a group of the company's steamers selected as being typical of four distinct types of service. The express steamer *Deutschland*, twenty-three knots per hour, for some years holder of the Atlantic racing record, is 661 ft. long, and of 16,502 gross tons register, with 37,000 h.-p. This vessel can carry 467 first-class passengers, 300 second-class, 300 third-class, but, owing to a large crew and coal consumption and fine lines, she can carry less than 1,000 tons of express freight.

The *President Grant* represents a combination freight and passenger ship purchased and fitted especially for the Hamburg-New York emigrant trade. This steamer, 616 ft. long, gross tonnage of about 17,540, can carry 324 first-class passengers, 125 second-class, 1,000 third-class, and 2,320 fourth-class on the middle and lower decks. This enormous steerage capacity is the direct result of the enormous westward movement of emigrants, and the vessel can, at will, fill a large part of its

¹ Hamburg-Amerikanische Packetfahrt Aktien Gesell.



Alleghany—Hamburg-American Line, Tropical Service



space with low-class passengers or with freight, having at times a capacity of something like 15,000 tons freight, but this at some sacrifice of full passenger list.

The twin-screw steamer *Kaiserin Auguste Victoria*, at seventeen knots per hour, 677½ ft. long, 24,581 gross tons, and 43,000 tons displacement, represents the highest type of combination freight and passenger steamer for the north Atlantic. She carries 550 first-class, 350 second-class, 300 third-class and 2,300 steerage passengers, and in addition, about 10,000 tons of freight.

A subsidiary type is shown in the *Alleghany*, formerly of the Atlas Line; 2,494 gross tons, 2,000 h.-p., 12 knots. This vessel is in the New York-West Indian service. It can carry sixty first-class passengers and nearly 2,000 tons of freight.

While the Hamburg-American stands as the high type of world traffic development, it does not stand alone, and it differs only in degree from many others. In 1874 the Anchor Line, not particularly well known, because of its chiefly freight service from Glasgow to New York, was heralded by its admirers as the largest steamship company in the world, but it had not become so solely through its eighteen years of New York service. Before the New York service began, the Anchor Line was great in the British Mediterranean trade, and for nearly a decade the New York service was a secondary interest to the Mediterranean service from which it had sprung.

The consolidation of a number of local European lines may be taken as the signal for the founding of a new line to some foreign land. In 1875, a period of great depression and failure, and therefore of ease of consolidation by the hands of the strong, the Wilson Line from Hull to New York was started, but it was merely the offshoot and distributor for one of the largest collections of coasting steamers that ever fed a port. The head of this firm is often called the largest ship-owner in the world. As long ago as 1891 the firm had 140,000 tons of steamers, of which 40,000 tons were trading to the Mediterranean, others to South America, Hindustan, and Australia. The Leyland Line, which started a service from Liverpool to Boston in 1876, was an old established firm with a large Mediterranean trade; and the Johnson Line to Baltimore was started in 1880 by a firm with a great business between Liverpool and the Danubian ports. Baltimore, a heavy shipper of grain and agricultural produce, had a trade like the Danube and gave a fine chance for equalizing the employment of tonnage. The White Star Line on the Atlantic was the noble effort of old Australian traders, and they are Australian traders yet, despite Atlantic success and the Morgan merger into the so-called shipping trust.

The largest Italian line, the Navigazione Generale Italiana, was formed in 1881 by the union of smaller lines, and in thirteen years it had 105 steamships operated on many seas. A



President Grant—Hamburg-American Service of Moderate Speed

few years ago, the numerous small companies plying about the island capital of Denmark united to form the United Companies of Copenhagen, and with that basis for distribution they began at once to send steamers to the far East to take their freight and get something for them to distribute.

With these facts and tendencies of line traffic organization in view, it becomes very plain that the forwarding of American goods by foreign steamers was the most natural thing in the world. Not only were the existing lines well equipped and located to render the service well, but in dozens of cases the goods could and did pass from the foreign country to Europe and thence to the United States and *vice versa* in the lines of the same company. One of the lines was merely serving as the feeder to the other, as it was meant to do when it was created.

CHAPTER IX.

THE RAILROAD STEAMSHIP LINES ON THE ATLANTIC AND GULF COASTS OF THE UNITED STATES.

THE previous chapter has pointed out the tendency of transportation companies to consolidate by both land and sea. There is no reason why the two systems of transportation should stay apart, and it is natural that this process of consolidation should overleap the land and demand the combination of both steamship and railroad lines to complete the requisite unity of service. The railroad line with steamship feeders would be benefited thereby and at the same time steamship lines with railroad alliances would be better served. There is a common want and a mutual advantage—each can help the other in its desired extension of service.

Extension of service does not necessarily mean consolidation of carriers. If it so happens that the desired service can be obtained without consolidation, the consolidation will probably not occur. The railroad that has its terminus in a port with great sea connections finds its wants supplied. Alliances there are unnecessary, and indeed they may rather be more entangling and

limiting than beneficial, and are therefore to be avoided. New York, London, and Liverpool are not the ports in which we can best study railroad steamship lines. The railroads that reach these ports have practically completed their world connections by reaching a point where these connections have been already established in response to the demands of existing local commerce. The number of ports with such satisfactory connections is small, and in most parts of the world the railroad that reaches the sea finds its wants unsatisfied if it depends upon such sea carriers as may independently seek freight at its terminus. The railroad must extend itself across the seas. It is thus manifest why the railroad steamship line is of a world-wide occurrence. It has its fullest development in America, but it exists also in the Irish, Baltic, Aegean, Yellow and Japan seas.

THE EXPERIENCE OF AMERICAN RAILROADS.

In its larger aspects, the railroad steamship line is coincident with the development of long railroad lines, but it had its American origin on Long Island Sound in the early days of railroads in America. This partly enclosed body of water offering a somewhat sheltered route almost directly toward Boston from New York, was admirably placed by nature for this combination service, which developed most naturally. The steamboats from New York to Norwich in 1818 con-

nected there with the stage lines to Boston and other eastern points, and from that day to this there has been a varying but generally increased amount of co-operation between the two carriers, which has almost resulted in unanimity of ownership.

The first steamboat line from New York to Providence in 1822 was followed by another in 1827, and connecting stage lines carried the passengers on to Boston. In 1832 there were four of these stage lines, and they competed even more fiercely than the steamboat lines—and this competition was keen. This rivalry between the two groups of carriers promptly worked toward a consolidation of service upon the opening of the railroad from Boston to Providence June 15, 1835. Just at this time Cornelius Vanderbilt put a steamer on this route, and he met the competition of the older lines by having a special train take his passengers from Providence to Boston. The boats of the older lines left Providence for New York just after the arrival of the noon train from Boston.

This informal connection between the railroad and the steamboat did not survive, nor was the steamboat's dominance in the relationship to be permanent. Within two years (1837) the Rhode Island Legislature was calling the Boston & Providence Railroad to account for having violated its charter by refusing to some steamboats free access to its wharves for the discharge of through passengers and freight. This fruitless action

resulted because the railroad had for some time been interested in some of the steamboats and took this means, though ineffectually, to break the opposition.

A railroad owned by another company was completed from Providence to Stonington late in the same year, and in the season of 1838 this company made agreements with Vanderbilt and other steamboat-owners for a steamboat line connecting at that point for New York. Just at this juncture the Atlantic Steamboat Company, a new corporation, put on a very fast boat to Providence. The Boston & Providence Railroad Company at once put down the fare from Providence to New York to two dollars direct and three dollars via the quicker Stonington route. The boat of the new Atlantic Company was too fast for them and the next step was to offer to purchase Vanderbilt's steamer for sixty thousand dollars provided she could beat the boat of the rival Atlantic Company. This she failed regularly to do, so the fare by the railroad steamboat line came down to one dollar. Petty persecutions followed: no special trains would be granted to the passengers of the rival boat when she missed the regular train. But despite these efforts, the rivalry and races were stopped only by the railroad company's purchase of stock in the rival Atlantic Company and consequent strong representation on the board.

By 1845, upon the completion of the Norwich & Worcester Railroad, the Boston-New York

traveller had the option of a third combined water and rail route, that *via* rail to Norwich, Conn., and thence by boat down the Thames and along the sound, but this did not give any severe competition with the Boston & Providence Company, which was the strong member of the group.

The years 1844-1846 were years of active competition, with three or four independent steamboat lines running between New York and the Long Island Sound terminus of the Boston roads. In 1845 Vanderbilt, Drew, and others got possession of the Providence & Stonington Railroad, and Drew took the presidency of the New Jersey Steam Navigation Company, which was the leading boat company of the sound and the successor of the original line. Here we see the community of interests achieving results as at present. In 1844 there was another combination route opened via the Long Island Railroad from Brooklyn to Greenport, Long Island, whence steamers plied to Stonington and Providence, and also to Norwich to connect with the road via Worcester. This Long Island route, having the longest rail line and the shortest water line, had the advantage over all others in point of time required. In this respect, it had the same advantage over the Stonington route that the Stonington route had over the Providence route. This Long Island line was very popular, was much used for three years, and carried the United States mail to Boston, but it was discontinued in 1847 on the completion of the New York, New Haven &

Hartford Railroad and the opening of the Fall River Line. The Long Island route was a Vanderbilt interest, and he also had control of the Norwich route. The new steamer *Atlantic*, which made its first trip from Norwich to New York August, 1846, was a vessel 320 ft. long, 1,400 tons, and was described in *Hunt's Merchants' Magazine* of that year (v., xv., 323) as the property of the Norwich & Worcester Railroad & Steamboat Company. It was said to be the acme of perfection, the finest as well as the largest ever built in America.

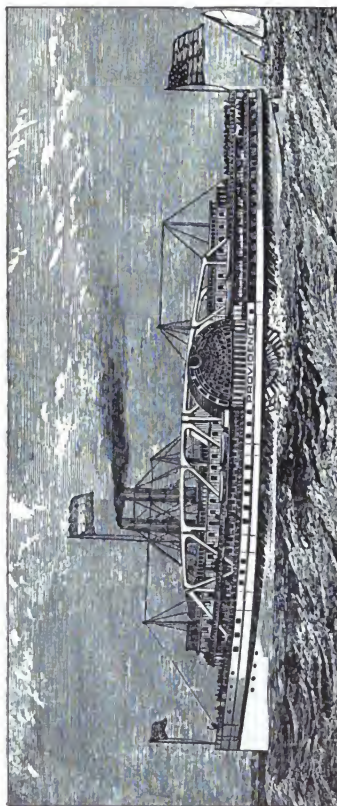
The Fall River Line (the Bay State Steamboat Company) commenced business in May, 1847, running in connection with the Old Colony Railroad, which had been opened a few months before, giving a through line from Fall River to Boston. The early opening of the steamboat line to complete the service to New York was brought about in the now well-known manner of having the steamboat company well represented on the board of the railroad company. At various times during this early period difficulties arose over the division of proceeds between the railroads and the contracting steamship companies. In 1860 the future was foreshadowed and the difficulty settled for the Norwich & Worcester Railroad Company through the company itself taking a large interest in the organization of the Norwich & New York Transportation Company.

In 1860 the Stonington Railroad was extended to Groton, which in that year became the terminus

of the steamboat line to New York. The destruction of the terminals at Groton led to the return of the line to Stonington in 1865. In the disturbed period just after the Civil War, there were various rearrangements and reorganizations of lines on the sound, one of which, through the failure of the Merchants Navigation & Transportation Company, left the Stonington road without connections in January, 1867. The company then adopted the thoroughly modern expedient of organizing the Stonington Steamship Company, in which it held eighty-five per cent. of the stock.

In the same year, 1867, a new route to Boston was opened by a contract arrangement between the steamers and the railroad connecting at Bristol. In 1868 this line and the Stonington Line competed until rates went down to a dollar from Boston to New York, but they soon stopped that policy and worked harmoniously until, in the hard times of 1877, the Stonington Company opened a new passenger steamship line to connect with Boston via Providence. This precipitated another rate war, during a part of which there were six different combination water and rail routes from New York to Boston, and two of them were operated by the Fall River Line, now in the control of the Old Colony Railroad Company. The rate war lasted until 1881 and was ended by an agreement to divide a part of the traffic among the contestants.

About 1885 the New York, New Haven & Hartford Railroad Company began to strengthen



Providence—Fall River Liner of the Seventies

its grip on the steamer lines of the sound and in a decade it had gone a long way toward their absorption. In 1893 the New York, Providence & Boston Railroad was merged and with it went the Providence and Stonington Lines of steamers. Two weeks later a ninety-nine-year lease of the Old Colony Railroad followed and with it went the Fall River Line. In 1898 the New York & New England Railroad was absorbed, carrying with it the New York & New London Steamboat Line. In 1899 the New York & Hartford Steamboat Company opened a new line to Providence, calling it the Narragansett Bay Line, but the next year the New York, New Haven & Hartford Railroad got control of the company and withdrew the line.

The monopoly by the railroad steamship lines was, however, hard to maintain. The year after the last purchase just mentioned, the Joy Line, which had before been carrying only freight to Providence, began to carry passengers. The railroad met this by putting on a new steamboat line. The older regular lines were charging three dollars to Providence, the Joy Line one dollar and seventy-five cents, and the new railroad boat line charged one dollar and the Joy Line met this with one dollar and a half round trip.¹ At this time the rate on the old Fall River Line was still three dollars and the traffic was falling. The competition went on until October, 1902, when the railroad with its many steamers and services

¹ *Railroad Gazette*, 1900, pp. 499 and 516.

could protect itself only by making an agreement with the Joy Line. Nor did even this guarantee it in peaceful monopoly, as "every year or so"¹ new competitors kept springing up. In 1906 this rivalry took the new form of trolley-steamboat competition in an active form at the hands of the Enterprise Navigation Company, which was selling through tickets at low rates in connection with trolley lines from Fall River to Boston.

The checkered experience of the steamboat lines on Long Island Sound as they have gradually become more and more nearly railroad appendages is illustrative of the methods that have prevailed the world over, but it is scarcely worthy of the name of ocean transportation.

The Panama Railroad & Steamship Company is probably² the first clear example of the oversea line in connection with an American railroad. This railroad, completed in 1855, was almost unique in having no local traffic and in being a connecting link between two seaports which exist only because of through trade. To improve its traffic this road promptly established a steamship line from New York, and made contract arrangements with the then existing Pacific steamship companies plying north to Portland and south to Valparaiso. At times it has operated steamship lines of its own on both oceans, and its traffic contracts have been numerous.

The year 1870 seems to mark the general beginning of formal connections between American rail-

¹ *Railroad Gazette*, 1906, p. 447.



Priscilla—Fall River Line (New York, New Haven & Hartford Railroad)

road lines and transatlantic shipping companies. Before that time, coasting lines at various points had come under the control of the railroad companies to benefit the delivery of the railroad freight. This process has gone steadily forward until now many of the lines of coasting vessels in the United States are directly or indirectly controlled by the railroad companies, and most of those which are called independent must apparently have good working arrangements with the railroad lines in order to keep out rivals.

About 1870 the Eastern trunk line railroads having their termini on the line from Buffalo to Pittsburg, and down the Ohio to Cincinnati, began to extend their lines to the Mississippi and to lake-shore points. To secure traffic from across the lakes they put lines of carriers upon the Great Lakes, and on those waters to-day the independent carriers are in a very small minority. This process began on the Great Lakes shortly after 1850,¹ when the roads having their termini at Buffalo reached out to the West for traffic by operating or arranging for steamer lines on the lakes. The new western connections won by the expanding Eastern railroads gave an increase of through traffic which demanded satisfactory outlet across the Atlantic if the railroads were to prosper. This situation is well described in the words of the *Pennsylvania Railroad Report* for 1871 (see p. 25): "The main object of the organization of the Pennsylvania Railroad Com-

¹ Morrison's *History of American Steam Navigation*, p. 573.

pany was to promote the traffic between this city [Philadelphia] and the West. . . . It was confidently expected, on the completion of our railway, that the enterprise and the capital of the citizens of Philadelphia would have been at once enlisted in the marketing of the product brought to their doors, and the means furnished to transport them to the points of consumption. But it soon became evident that this could not be depended upon, and that our cars must pass to New York to meet purchasers of their contents, or the business of the company would be dwarfed to that of a second-class railroad, a fact which the interests of the shareholders would not permit."

The situation thus described by the directors of the railroad company was felt keenly by all Eastern trunk lines, and they took steps to help themselves out of the predicament. The Pennsylvania Company organized a steamship company, which operated to Liverpool a line of steamers called the American Line, established in 1871. The majority of the stock of this company was held by the railroad company, which also guaranteed the bonds of the shipping company. The organization of this corporation was similar to that of numerous subsidiary corporations organized by the officials of the Pennsylvania. The venture can scarcely be called a success because of the railroad's needs for more frequent and varied services than the commerce of Philadelphia supported. The reports of the railroad for the next few years very clearly



Colon—Panama Railroad Company

showed this difficulty. As the next step to overcome it, the Pennsylvania secured at great expense the United Railroads of New Jersey (leased in May, 1871, for 999 years), giving a direct outlet to New York harbor with its many steamship connections.

In 1884 the railroad company's American Line ceased to run under that name and passed into the hands of the International Navigation Company. Both of these companies were presided over by a director of the Pennsylvania, and this relationship continued until after the formation of the International Mercantile Marine Company in 1902. Intelligent opinion in both England and America held strongly to the opinion that there was friendly and practical relationship between the Pennsylvania Railroad and the shipping company.¹ It should be remembered that the primary wants of the Pennsylvania Railroad were satisfied by the New York terminal, which accounts for the railroad company's lessened interest in the steamship enterprise.

The Baltimore & Ohio with its terminus at Baltimore, preceded by a year or two the entrance of the Pennsylvania into the shipping business by aiding in the establishment of the Atlantic Transport Line, which grew out of the Baltimore Storage & Lighterage Company, and gave the Baltimore & Ohio a European outlet. As was shown in the case of the Pennsylvania Railroad,

¹ See *Fairplay*, Nov. 3, 1904, p. 681, for a statement of British opinion.

ocean service from Philadelphia depended upon the steamship company acting in connection with the railroad itself. This was still more the case at Baltimore, and at such small places as Norfolk or Newport News, a railroad was helpless that did not depend upon some other seaport or furnish its own connections. At first the Norfolk & Western and Chesapeake & Ohio lines were dependent upon New York, through the aid of the Old Dominion and Clyde lines of coasting steamers. Then each of these railroad companies established a line of steamers to Europe. Later the Norfolk & Western gave up its line and lightered its goods across the estuary of the James to the terminals of the Chesapeake & Ohio, to export them by the Chesapeake & Ohio steamers. This steamship company, which is technically a British company with ships under the British flag, was controlled by the Chesapeake & Ohio until June, 1905, at which time the railroad withdrew its interest, but established an arrangement for continuing the service. This steamship line, from the mouth of the James and the Chesapeake, appears, in fact, to have gone through a number of arrangements. In 1900¹ the Southern Railway had been admitted to joint use of it and steamers were despatched to London, Liverpool, Hamburg, and Rotterdam. At the same time two of the railroads, the Southern and the Norfolk & Western, had an arrangement with the United States Shipping Company for the despatch of

¹ See *Railroad Gazette*, Oct. 19, 1900, p. 694.

steamers direct to Dublin, Belfast, Glasgow, Antwerp, and Amsterdam.

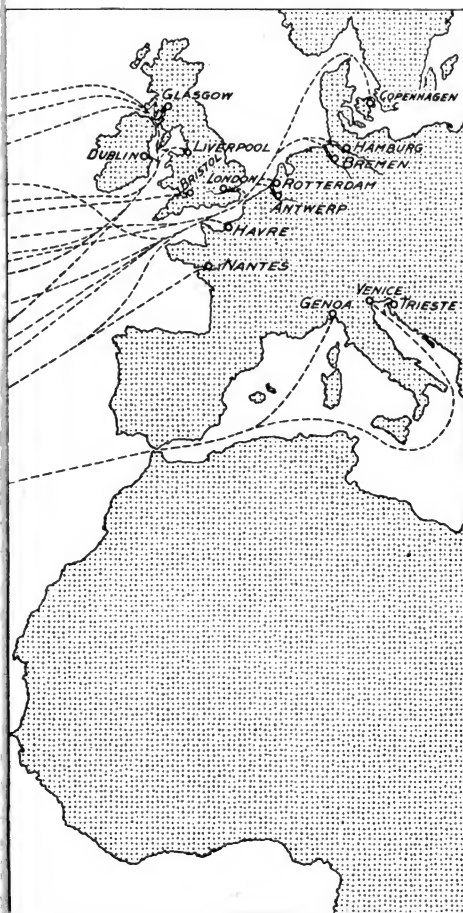
The ownership of the transatlantic steamship line by the railroad company is not usual on the Atlantic coast, nor has it been from the first, the common method being a freight agreement between a railroad and a steamship-owning company. The railroad company builds terminals, which it leases to the steamship company at nominal rates. In the period of the seventies and early eighties it was common for the railroad to guarantee the steamship company a certain amount of freight each month. This practice is not now so common, although the contracts cover periods of from five to ten years, and the railroad guarantees to deliver goods to the steamship line, and the steamship line to take the goods from the railroad and deliver import goods in return. The contracts are not mutually exclusive, but as the railroad controls the terminals, switching charges upon cars from other companies serve as a practical tax upon such shipment. It is easily possible, however, for goods to come by lighters from other railroads and go over the ship's side, although in the city of Boston even this is taxed by a so-called switching charge when the freight comes from the terminal of another railroad company.

This is quite different from the situation in New York, where nearly everything that is shipped is lightered, and each carrier deals with all others on terms of equality. There is also this further

difference, that in New York the shipping line, being independent of all railroads, must provide its own terminal facilities, whereas in other ports they are usually provided by the railroad, which thereby guarantees its outlet. This is plainly evident at present in Philadelphia, where there are several lines operating to European ports in connection with the Reading and Pennsylvania railroads, and using their terminals. Boston has such lines, and from Portland, Maine, the Grand Trunk announced in 1903 that there would be four services to British ports, in connection with the Grand Trunk Railway, during the ensuing winter, weekly to Liverpool and London, fortnightly to Bristol and Glasgow. These contracts were with three different steamship companies.

By means of a combination of its own steamship line with the railway the isolate and resourceless railroad of Newfoundland has practically become a part of the railway system of the American continent and has won itself passenger traffic by issuing interchangeable mileage, through baggage checking, and by having a host of steamer connections at every bay and on to Labrador.

The ports upon the Gulf of Mexico, usually having small population and little variety of freight, are quite as dependent upon formal arrangements between railroads and steamships as are the smaller Atlantic ports. The Atlantic Coast Line, for example, has lines running from Miami to Key West and from Port Tampa to Havana. The vessels, under the flag of the Peninsular



& Occidental Steamship Company, are controlled by the railroad company. The small port of Pensacola, served by the Louisville & Nashville, has a line of British steamers in which the railroad company is interested, running to Mexican ports. The company also has a contract with an Austrian steamship company to run a regular line of vessels between Pensacola and southern Europe. This regular service succeeded the occasional despatch of ships which had for eight years past been running between Pensacola, Genoa, and Venice. The Louisville & Nashville has also contract arrangements with seven other lines of foreign steamers giving service from Pensacola to Liverpool, Hamburg, Bremen, Antwerp, Havre, Copenhagen, Rotterdam, China, and Japan. The railroad took these steps to free itself from the irregular service of tramp vessels. These lines are not in the minds of their operators deserving of that high-sounding name for the entire year. In the slack season they descend to occasional sailings.

The Illinois Central Railroad, with its spacious New Orleans terminals, has similar arrangements with lines to some European ports, but in the larger ports of New Orleans and Galveston, the steamers in the foreign trade are more commonly independent than is the case in the smaller ports like Pensacola and Gulfport. The Southern Pacific has long run a line of steamers from New Orleans to New York, and in 1902 a direct line was established between Galveston and New York,

thereby shortening the rail haul for Western goods, but the New York-New Orleans service was still continued. Since the acquisition of the Cromwell Line, passengers as well as freight have been carried between these points by the railroad company's steamers, and three fast passenger steamers have been added to the service, one of which is illustrated herewith.



Momus—Southern Pacific Passenger Steamer, New York and New Orleans

Wm. J. ...
1908

CHAPTER X.

THE RAILROAD STEAMSHIP LINE ON THE PACIFIC COAST OF THE UNITED STATES AND IN EUROPE.

THE Pacific coast of the United States and Canada is the terminus of great transcontinental railroads, and also of long trans-Pacific ocean lines. Furthermore, the population of Pacific seaports is comparatively small, the local traffic is light, in comparison to the rail-borne traffic, and the consequent mutual dependence between the railroads and the steamships is strong. There results here a more complete and extensive alliance between railroads and steamship lines than in any other section of the globe. Every transcontinental line has its secure arrangements, and several of them own steamship lines plying to all important countries of east Asia.

The alliance began soon after the first transcontinental road reached San Francisco in 1869. At that time the Pacific Mail Steamship Company had a line to China and Japan, to Australia, to Vancouver, local lines on the United States Pacific coast, and reached New York via Panama, where it connected through its contract arrangements with the Panama Railroad & Steamship Company.

This was a well organized and strong system. The company had long exercised the independence that arises from monopoly, and the Pacific Railroad Company soon became dissatisfied with the freight supply, in which the steamship company did entirely as best suited its own arrangements and its Eastern service. In 1874 the railroad objections took the form of a California company formed by the Union & Central Pacific Railroad Companies. This company, called the Occidental & Oriental Steamship Company, chartered four White Star steamers, and established an Oriental service. In the rate war that followed, rates went down to almost nothing, but the railroad made the quicker connections with New York. This competition, making loss to both parties, resulted in a working agreement between the rivals, which came near to being a real consolidation of shipping interests. The ships of the two companies alternated in dates of sailing, they had the same rates, rules and conditions of service; they had joint agents to solicit freight, and the agents were not permitted to make any discrimination whatever between the two companies on pain of discharge. There were two companies to watch the workings of this plan and protect their own interests.

This friendly competition went on for nearly twenty years, when the Southern Pacific bought a controlling interest in the Pacific Mail Steamship Company, but it did not in any way alter its service or apparent relations to the partner

steamship company. In 1897 a group of Japanese capitalists backed by six million dollars and government influence and subsidy concluded to go into the shipping business. They formed the company known as the Toyo Kisen Kaisha and toured the Pacific coast of the United States for a suitable terminus. The Southern Pacific interests, foreseeing a destructive rate war, admitted them to a place at once in the San Francisco service, and this third company joined the others on the terms identical with those established at the close of the rate war in the seventies when the two companies first agreed on the conduct of this service.

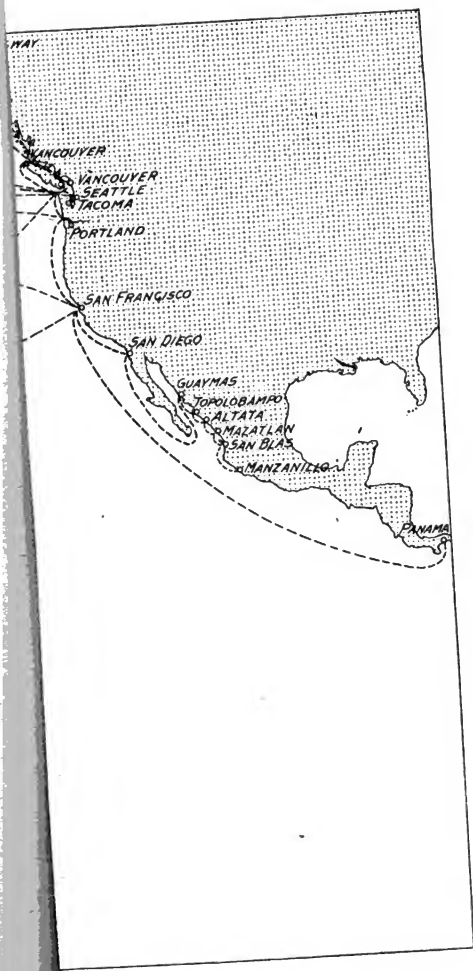
Encouraged by this result, some Chinese merchants in Hong Kong formed the China Commercial Company shortly after this, chartered four steamers, and started to carry passengers to Manzanillo, Mexico, and to compete at San Francisco with the combined lines. These new-comers were not received on terms of equality, but were beaten off the Pacific after six months of furious rate-cutting.

The Atchison, Topeka & Santa Fé Railroad for several years after 1898 maintained a line to the Orient from San Diego, but the local trade was not satisfactory, and the relations of this railroad company with the Southern Pacific were so intimate that the San Diego service was discontinued in 1901, and in its place the company used the San Francisco lines maintained by the Southern Pacific interests. Portland, Ore., has

the Portland & Asiatic Steamship Company rendering a service, almost exclusively freight, in connection with the Oregon Short Line and the Harriman roads. The steamers are chartered from the Hamburg-American Company.

Puget Sound and the Hill roads are served by a variety of Pacific carriers. The Great Northern has the Great Northern Steamship Company, which ran the splendid new steamers the *Minnesota* and *Dakota* until the *Dakota* was wrecked in 1907. They operated alternately after the San Francisco manner with the vessels of the Japanese Nippon Yusen Kaisha and extended their services to Manila. The Northern Pacific once had a Northern Pacific Steamship Company operating with chartered steamers, but it now has a traffic agreement with the Boston Steamship Company, which operates a line of steamers to the Orient. The Boston Company seems to have a preferred claim. Such residue of traffic as it cannot handle is provided for by outside contract.

The Hill interests are also engaged in the coasting trade of the Pacific. In 1901 the Pacific Coast Steamship Company, a company subsidiary to the Great Northern, took over the ships and good will of the Alaska Steamship Company, and it also operates a line from Seattle, Tacoma, and Victoria to San Francisco, and to Guaymas and Mazatlan in Mexico; also minor lines on the California coast. The wide reach north, south, and west of these distributaries and feeders



gives the Hill roads a strong hold on Pacific commerce.

The population of regions adjacent to the Pacific is scanty and the new railroads at present under construction towards that coast will find the local traffic of ports aside from that produced by themselves to be so small that it has now apparently become the custom to prepare for the steamship line at the same time the railroad is decided upon. Some years hence the Grand Trunk Pacific Railway will reach the Pacific coast. Its first plan was to go to the now unused harbor of Port Simpson near the south point of Alaska. In 1904 the company announced that a contract had been made with the Allan Line (Steamship Company) for a trans-Pacific service from this port similar to their trans-Atlantic service now in operation in connection with that railroad. This will require a new fleet of steamers. New railroads to the Pacific ports of Mexico are also making contracts for steamer service for lines yet unbuilt.

The Hamburg-American Steamship Company has entered into a contract with the Kansas City, Mexico & Orient road to run a line of steamers from Topolobampo across the Pacific as soon as the Orient road is completed. In 1906 the Orient Company already had a steamer in service from Topolobampo running north to Guaymas and south to San Blas. It has also a sailing vessel service from Topolobampo, which was being extended to San Diego in southern California.

The Canadian Pacific may be presented as the railroad with the most widely organized water transportation auxiliaries to be found upon the surface of the globe. In 1891 the establishment of its Hong Kong line set a new mark in transportation annals, for then one company had a road clear across the American continent and steamers extending it to the far limits of the China coast. In 1898 two steamers were also operated to Vladivostok.¹ In the company's report for the year ending June 30, 1907, the following fleet is reported:

Canadian Pacific Steamships.

Atlantic service.....	16
Pacific Coast service.....	11
British Columbia, Lake and River service.....	17
Pacific service.....	6
Upper Lake service (Great Lakes).....	3
Ferry service.....	2
	<hr/>
Total, all classes.....	55

That is to say, a transcontinental railroad operates two transoceanic services, connecting east Canada with Europe, and west Canada with Japan, China, and Hong Kong. Lakes and rivers are used as feeders, and there were at one time rumors of proposed connections with the Trans-Siberian Railroad, and with the Yukon River through purchase of the White Pass & Yukon Railroad and a line of Alaska steamers. The steamship lines of this railroad company are

¹ *Social Economist*, vi., 283; *Scribner's*, x., 280; *Railroad Gazette*, Aug. 15, 1898, p. 615.



Empress of Britain—Canadian Pacific Railway, Atlantic Service

not operated on working agreements, but are run by companies frankly owned by the railroad company. It also charters steamers which it operates on a line to New Zealand on alternate sailings with the Union Steamship Company of New Zealand.

THE THEORY OF THE RAILROAD STEAMSHIP LINE.

In this widespread combination of the railroad and the steamship line, the railroad is the dominant factor; the steamship is but a railroad attachment. When one stops to consider the capital involved, it appears natural that it should be so. Great Britain is properly hailed as the mistress of the seas, the world's great ocean carrier, and yet her merchant marine has a value not exceeding one-seventh part of the capital value of the British railroads¹ and a much smaller part of the value of the American railroads. The amount of money involved affects the order of development of transportation more than it reflects the value of the commerce. This is because the railroad is primarily a costly road, the ship but a vehicle using the highways of Providence.

That sea investments of railroad companies are but props to the railroads is clearly brought

¹ The paid-up capital of British railroads at the end of 1906 was £1,283,000,000. The total British tonnage was 17,611,096. New freighters can be launched at from £10 per ton. Granting this rate of valuation (and it is too high) the value of the fleet is less than £180,000,000.

out in the annual report of the Canadian Pacific Railway for 1904. After giving a list of shipping amounting to nearly 150,000 tons,¹ the report states that the Atlantic steamer service shows no net revenue, due to demoralizing conditions; "nevertheless the steamship line has, as anticipated, proved a valuable auxiliary of the railroad." The report to the stockholders then proposed more new ships. The inevitable conclusion from the above seems to be that the railroad company can sometimes afford to lose money on a steamship line which serves as a freight collector or distributor for the railroad line.

British opinion also bears out this conclusion. The privilege for a railroad company to run steamers must be secured by special grant from Parliament, and such grants are bitterly opposed by shipping interests, because of the fear that the private vessel-owner might be driven from the business, through the railroad steamers making rates that would be ruinous to a competing company that was an ocean carrier only. In the words of an editorial in *Fairplay*²: "It is well known that these steamers [belonging to the railroad companies] generally run at a loss, but the accounts of the steamers are merged in the general accounts of the companies and the steamers are supposed to make up as feeders for the lines what money is lost on their own making."

¹ An amount several times as great as that employed in the European commerce of the British colonies two centuries ago, and it is also about six times as efficient per ton.

² See September, 1901, p. 482.



Empress of China—Canadian Pacific Railway, Pacific Service

Three years later an editorial in *Lloyd's Gazette* ¹ stated that there seemed to be an attempt to make them more profitable. But this can scarcely be general.

A recent British Government report (Dept. Paper 210, *Foreign Merchant Shipping*, London, 1905), discussing the fact that the Great Central Railway Company runs steamers from Grimsby to Hamburg and carries emigrants pursuant to all the expensive regulations of the German law, says that this practice "is rendered profitable solely owing to the fact that this company is able to carry the emigrants through England on its own railroad lines to the port of embarkation for their transatlantic destinations."

The building of terminal facilities is a necessary part of the connection between railroads and ships. It might apparently be undertaken by either of these carriers, if they are merely making an agreement, it being the essential to one as to the other, but as a matter of fact the dock is usually built by the railroad because of the fixed location of the land carrier. The freedom of the seas gives the ship the opportunity to go to the best port that is already prepared, so it devolves upon the land end of the investment to provide the port and the harbor. Hence we find the state, the municipality, and the railroad furnishing the necessary funds to provide the unloading facilities for the carriers by sea. The shipping company sticks to its element.

¹ Weekly, Sept. 16, 1904.

British harbors are usually enclosed stone docks—yet with so costly a type of construction several British railroad companies have built docks, thereby practically making harbors to which ships are glad to come. The railroads in question have in effect done for themselves the same thing that American roads have done when they contracted with foreign lines.

BRITISH RAILROAD STEAMSHIP LINES.

The distribution of British railroad steamship lines responds to the same economic laws that prevail in America. They are more common in the small ports than in the great ports. Harwich, Dover, Brighton, Southampton, Hull, Goole, etc., lack the traffic temptations to induce the establishment by ship-owners of the complete and varied connections desired by railroads. The roads needed them and made them themselves. It was a very easy step for the British roads to operate steamers, as the short sea journey to the continent bore about the same relation to railroad activity that our lake carriage does to our railroads. It has a local rather than an oceanic quality. The lively trade with the continent continues with a small type of vessel because of the frequent voyages required by the perishable nature of the traffic, and the large number of passengers carried. These continental connections almost resemble ferries in the frequency

of the service. From Hull on the east coast to Southampton on the south coast and at many intervening ports steamers pass each day to and from the continent. This daily service includes Hamburg on the east and Havre on the west, and where the sea is narrowest there are at times several railroad steamer connections daily, as at Dover and Brighton.

The small type of vessels required combines with British thoroughness to make ownership the prevailing practice rather than the traffic agreement, which is common in the transatlantic steamship services of American railroads. The sea connections of British railroads with termini on the Humber estuary afford an interesting example of the British methods. The North Eastern Railway Company, with a port at Hull, and the Lancashire & Yorkshire, having its port at Goole, have duplicate privileges from Parliament to own and run steamers to the following seventeen ports: Copenhagen, Antwerp, Ghent, Dunkirk, Hamburg, Rotterdam, Bruges, Amsterdam, Delfzyl, Flushing, Hulst, Harlingen, Stettin, Lübeck, Dantzig, Stockholm, and Warhus. This grant guarantees the railroads in such connections as they may care to establish; it is not necessarily for immediate use.

The North Eastern Railway actually runs no steamers in its own name. It controls majority stock in a company running a line to Amsterdam, Rotterdam, and Harlingen, and has an agreement with Thos. Wilson Sons & Company, Ltd., ship-

owners of Hull, to work in unison with them to the remaining ports.

The Lancashire & Yorkshire Railway runs steamers to the first nine of the seventeen ports named in the Parliamentary grant.

The Great Central Railway, having terminus at Grimsby, also on the Humber, has a Parliamentary grant to own and run steamers to eight ports as follows: Antwerp, Hamburg, Rotterdam, Gothenburg, Malmö, Landscrona, Eilsingberg, and Halmstadt. The company runs steamers to the first three and had an understanding with Thos. Wilson & Company not to run lines to the other five ports so long as Wilsons kept a regular service.

The traffic with Ireland partakes of all the economic characteristics of that with the continent, and is chiefly carried on by the railroad steamship lines. There were announced for 1906 twelve of these lines connecting Great Britain with Ireland. Nearly all of them (two only are for Liverpool) run from small and often unnoticed ports where the five railroads have been able to reach the sea. From Liverpool and Glasgow there are lines of independent steamers.

The maturity of British industries gives less prospect than in America for probable extension of this form of organization in transportation.

Thus far the British railroads have not ventured on transoceanic steamship connections, nor is it likely that they will find it necessary to do so. If it should be the case it will occur through the growth of some of the small ports, which are now



Anglia—London & North-Western Irish Service

lacking in connections, and probably in harbor facilities, but the large British ports are so well supplied with steamer connections, and cover the needs of a small country so adequately, that we may not expect much change in the near future.

EXPERIENCE IN OTHER FOREIGN COUNTRIES.

The managers of the newer railroads of Europe and Asia seem to be as generally convinced of the necessity of developing steamer connections as do those in America. The Anatolian Railroad Company loaned \$600,000 to a steamship company to enable it to give better service in the *Ægean* sea. In 1901 the Chinese Eastern Railroad (Trans-Siberian) had eleven steamers at its disposal and was increasing them; in 1902 the railroad had six separate steamer lines running from Vladivostok, some of them running as far as the sea of Okhotsk, but Japanese competition made this service rather unsatisfactory—and it has since done worse things.

The Roumanian state railroads have been operating steamers from the Danube for a decade, and for a part of the time the line reached points as remote as Egypt and Antwerp.

The railroads of an undeveloped country like Russia are in a position akin to those of the Gulf ports of the United States and steamship contracts are the rule. Since 1873 there has been a traffic association attending to this matter in

the Baltic and usually making new arrangements each season upon the opening of navigation. This association ("Northern Oversea International Traffic") regulates, arranges, and even goes so far as to deny to some lines permission to run steamers where they wish. In 1901 the contracts thus arranged by the Moscow-Windau-Rybinsky Railroad Company provided for service by four steamship companies from Windau to ten ports distributed between Dundee, Dunkirk, and Copenhagen. Arrangement was also made for service to the Rhine and for French and Spanish shipments at Dunkirk.

In the management of state railroads in monarchical Europe we see the bureaucracy doing by rate control exactly the reverse of the common practice of American and English companies. The Anglo-Saxon company runs a steamship line for the benefit of the railroad. The governments of Germany and Hungary, dominated by different and national motives and endowed with strong control arising from national power, use the railroads to favor and make profits for the pet national steamship line or lines, to which the railroad is made subservient. It is a part of the German export subsidy policy to give in some cases much lower railroad rates for export goods than for domestic traffic. This is a policy, however, which must be supported by taxation rather than industry. It is political rather than economic. In Hungary, the state has a railroad line to Fiume, and a subsidized line of steamers

in the Adriatic. The Austrian Government, using the port of Trieste, has the same. Four years ago competition arose and the Austrian steamers were cutting in on the trade of the Hungarian steamers at Fiume. The Hungarian government stopped this by arranging its railroad tariff, giving preferential rates on goods going out by the Hungarian steamers.

CHAPTER XI.

THE RENAISSANCE OF THE MERCHANT CARRIER: THE PRIVATE STEAMSHIP LINE.

THE nineteenth century witnessed the evolution of the public carrier by sea. At the beginning of the period the merchant carrying his own goods was the conspicuous figure. But, by one of the strange repetitions of history, his disappearance was quickly followed by reappearance. The twentieth century opens with private carriers operating on such a scale that they are able to run lines of steamships as links in huge productive and mercantile enterprises. This change is due to the magnitude of the modern corporations, which outrank the individual as a regiment outranks a policeman.

Present operations in coal, iron, petroleum, asphalt, fruit, and other industries are prosecuted on a scale unprecedented in size and made possible only by the modern corporation, in which property and resources sufficient for a mediæval kingdom are bound together by telegraph and telephone, by which a more than military organization can control an army of men laboring towards a common result. Like a state or a reg-

iment, the corporation has an organization and a continuous existence that depends upon no man's life, and it can, by this scope and continuity of action, attain a scale enabling it to incorporate and use a steamship line as a part of a single business. This has occurred in both agriculture and manufacture, in the marketing of products and the assembling of raw materials.

There are several reasons for this development of the line as an adjunct to an industry:

First.—The freight for shipment from the ports of a certain region may be only of the coarse and bulky character that goes in full cargoes. There is then small demand for the services of a common carrier to furnish line service. It is chiefly in such regions that the industrial steamship line has arisen.

Second.—With private-carrier traffic of the character just referred to, it is natural for the large operations of modern business to demand regularity of movement. Hence a line arises within the service that naturally belongs to tramps.

Third.—Special service may be required, with specially designed vessels to supply it.

Fourth.—The ordinary arguments in favor of consolidated enterprises—elimination of intermediate profits and reduced cost of supervision per unit of output incident to the enlargement of the business are potent in water transportation.

Probably the best examples of the industrial steamship lines are to be found in the oil industry

and in the American banana industry. Well over 100 steamers are engaged in carrying bananas from the West Indian and Caribbean region to the United States and Europe. Over nine-tenths of these vessels are operated or controlled by a single company. The evolution of the business and its transportation organizations have been rapid. In the beginning bananas were occasionally sent to this country on consignment, a group of growers sometimes combining to send a small schooner, leaving the sale to some American commission merchant. This method is the one followed by the distant farmer who sends his produce to a large city market, but in the banana trade the practice did not survive. The usual method, even in the early days of the trade, was for the importer to send or take his ship to purchase the fruit at export points and bring it to our ports for sale on his own account. This has led to rapid changes in the business because of its especial need for organization and because the banana trade, owing to the perishable nature of the fruit, requires a faster ship than can commonly be found for hire. Ship-owners will gladly build such boats if the banana merchant will promise to hire them all the time or for long periods; otherwise the ship might be compelled to take employment for which she was not well suited. The result is that the banana merchant must hire his ship for a long period, if at all.

The banana importer enters the business with heavy stakes and it is a business in which com-

petition is particularly destructive. There is no middle ground upon which competition can exist. A steamer holds a great many bananas, and as they are a perishable commodity, sometimes sold at auction in the process of distribution, two steamers arriving at one port at about the same time may easily so overstock the market that there would be low prices and loss for both parties. It is therefore necessary for each company to know what the others are doing and keep out of the others' way or make conditions of mutual loss. Agreement is hard to maintain, for some firm must exercise the whip hand, a position usually not to be accorded without competitions and wars. In the tropical fruit business these fights have come often and have usually been fights to a finish or to consolidation, so that by 1899 the chief survivor, the United Fruit Company, handled 98 per cent. of the American banana traffic, and with its hundred steamers it now scours the West Indian and Caribbean coasts, runs lines to Boston, New York, Philadelphia, Baltimore, New Orleans, Mobile, and Bristol, England, and occasionally sends steamers to other ports in both England and America. At the present time this company's monopoly is not so complete as in 1899, but the independent companies do so small a business that they are not worth the cost of the general price reduction that would result from attempts to drive them out. A small company running one steamer to Philadelphia, for example, could not be forced

out by competition unless the large company reduced the price on eight cargoes in that and other parts easily reached by rail. The independent knows that he dare not grow, or he would be big enough to be dealt with and put out of business. He has seen others die the death through prosperity in just that manner.

He therefore feels constrained to seek contentment in that much-praised middle ground between poverty and the great riches that might come through much multiplication of business.

These vessels of the banana fleet do not usually belong to the fruit company. There is a drawback to the full working out of the process of consolidation at this point. Why does it not pay the fruit companies to stop paying profits to ship-owners? Some of the earlier companies tried it, but it is being given up. The fruit is marketed in the United States and the companies are American companies, but owing to the cost of building and operating American ships they cannot afford to use American ships, and they must be operated under foreign flags and through foreign companies. This, combined with the large capital involved, has served to limit the fruit companies to carrying on most of their traffic in foreign steamers. It is, however, currently reported that there is some American money in these steamers. They are built on the specifications of the user, who often charters them for four-year terms before they are built, and some vessels have been taken for ten-year

periods. These long charters show the real solidarity of the enterprise.

This process of consolidation is complete so far as water transportation is concerned, but it is only the beginning of the fruit company's enterprise. When a fruit company owns or is financially responsible for a steamer, that steamer must be kept employed as constantly as the banana seasons will permit. If she goes for bananas and cannot get them, there is loss on the steamer and loss of profits on the bananas that are not secured. As a consequence, the fruit business, which began as a mercantile operation and was compelled to include a carrier to have something to sell, has been compelled to become a producer to have something for the steamers to carry. Private producers on the hot, turbulent, and sparsely peopled shores of the Caribbean could not be induced to produce a regular, sufficient, and satisfactory supply of bananas and other fruits, and in self-defense the underlying companies of the United Fruit Company long ago started plantations and orchards. The present company produces a large part of the fruit that it carries and sells. It is stated by their representatives that the cost to them of producing their own fruits is as great as that of the purchased fruit, but the quality is better and the supply more regular. The process has even gone farther,¹ for the fruit

¹ President's address, 1905, meeting Royal Mail Steam Packet Co.

company has organized subsidiary companies that build and lease railroads to carry the fruit from the plantations to the port of original shipment.¹

Once the steamer service of the United Fruit Company was organized, it was inevitable that this regular service should devote some room to other freight and to passengers, particularly as the other freight is almost exclusively return freight which can be put into an otherwise empty ship as she goes out for another cargo. The managers of the fruit company are also cognizant of the fact that the passenger traffic is profitable and that the fruit steamer is speedy and well suited for it. The addition of a limited number of staterooms does not seriously interfere with the fruit-carrying capacity, so the fruit steamer has become a public carrier to a limited extent, for both freight and passenger; but this, like the company's ownership of Jamaica hotels for the entertaining of the tourists, is purely incidental to the main business, which is the marketing of its own fruit. When the passenger business sprung up, the fruit company merely completed this circle also by providing hotels of the elegance and comfort necessary to satisfy the tourists attracted by its ships.

¹ It is easy to see here the possible basis for the bitter complaints that arise from the independent banana-planters who declare that they have been forced out of the business. A returning traveller tersely puts it, "The United Fruit Company owns Costa Rica." In that country the fruit company has some of its most extensive land operations.



Ellis—United Fruit Steamer Designed for Banana Trade

The formation of the United Fruit Company has in nearly all its steps been the result of economic causes and has resulted in the great enlargement of the industry. If some Czar should sell separately at public auction every single piece of property owned by the United Fruit Company and public carriers should attempt to carry the fruit, it would not be three years until some central power guided its distribution. It is but a step to the guidance of the ships themselves. If conditions demand the sending of one cargo to a port not regularly served, the ship, under central control, can be sent. If this business depended upon a line or lines of public carriers such a shifting would be impossible.

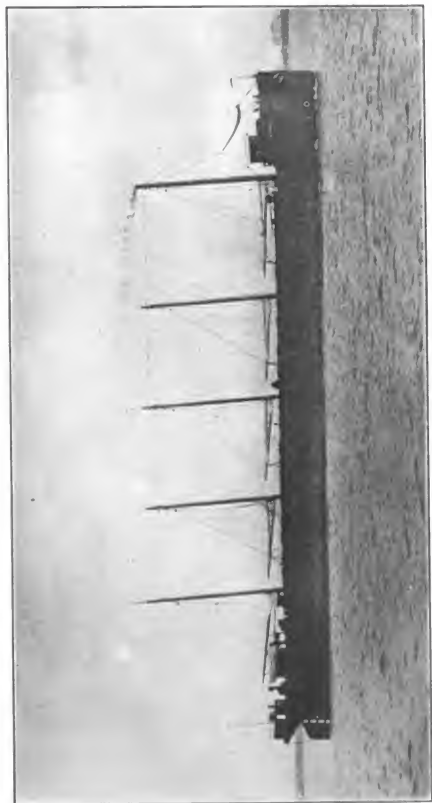
The even supply of bananas is in strong contrast to the spasmodic supply of strawberries, peaches, and other perishable seasonable produce shipped by rail to the same markets. The lack of common carriers has compelled the banana shippers to become their own carriers and then distribute their product by central control. The peach and strawberry business is larger when it comes, but it is not organically advanced beyond the stage of the banana business in its first beginnings. Each shipper sends, as suits his fancy, to commission men here and there. Markets are alternately glutted and starved, the demand is half met. The California orange-growers have, by voluntary association, learned to control the distribution of their product, and in a few years probably other important industries

will similarly organize and distribute their product as the exigencies of ocean transportation have compelled the banana-shippers to do.

The marketing of asphalt, lumber, coal, and petroleum is less exacting than fruit, in that these commodities are not perishable or easy of injury. There is consequently no imperative need of prompt despatch and the commodities may be carried in ships not especially constructed for one commodity. In the case of oil, however, tank steamers specially designed to carry kerosene or naphtha or crude petroleum in bulk show very great economies over other methods of shipment. The table appended indicates that the Standard Oil Company owns or controls nearly a third of the total tank steamer tonnage.

The first carrying of oil in bulk seems to have been in the Caspian Sea in 1873. In the same year two vessels were built for the Philadelphia-Antwerp service and equipped for carrying bulk oil as a part of their cargo.¹ Oil and passengers, however, will not mix, owing to the regulations for the protection of the passengers, and as these steamers of the Red Star Line were in a very profitable place for passenger traffic, their oil tanks were unused. The use of tank steamers requires a corresponding large-scale shore equipment of pipes and pumps and tanks that can only be provided by distributors on the largest scale. The carriage of bulk oil, therefore, is not a simple question of ships, shipping, and ship

¹ Fry, *The History of North Atlantic Steam Navigation*.



Standard Oil Barge. The Foremast is the Galley Chimney

management. In many parts of the world where there is large oil traffic there is no equipment for the accommodation of tank vessel cargoes. Consequently it was not until 1888 that vessels of this character were used on the Atlantic. Since that date, the extension of their use has been rapid. The larger ports of the great consuming countries of western Europe have the necessary receiving equipment and the pipe lines from the Ohio Valley to the Atlantic coast ports, from the Caspian field to the Black Sea ports, and latterly from Texas and adjacent fields to the Gulf of Mexico, give wide sources for the supply of the cargo. The same method of distribution prevails east of Suez, where the chief supplies are in Burma, the Dutch East Indies, and to a lesser extent in Japan. Some firms¹ of tank carriers make a practice of supplying large users throughout the world and avoid paying Suez tolls by using Texas oil for points west of Suez and East Indian oil for stations to the east of the high-tolled canal.

Tank steamers are used also in the American coasting trade, Texas crude oil being carried to the refineries on the Atlantic coast and the refined oil thence to Europe.

Recently the economy of this specialized transportation has gone one step farther than the tank steamer. It is the tank barge which the tank steamer tows. For several years prior to 1905 the Texas product had gone to Atlantic

¹ *Fairplay*, London, June 20, 1901, p. 1005.

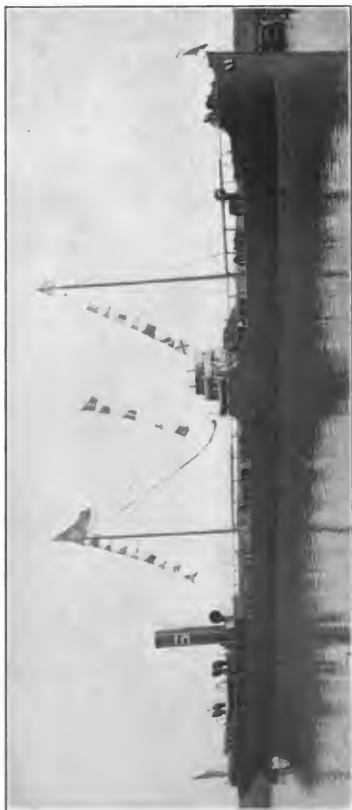
refineries in Standard Oil Company's steel barges. In that year the barges were first sent to Europe. This, however, was not the oceanic barge record, as a year before a barge had been towed by a tanker from New York to San Francisco, 13,090 miles, in 72 days.¹

Of late years these tank steamers have almost superseded the older form of oil traffic by which barrels were carried in any available vessel of ordinary type. Some of the tankers are owned and operated by European refining companies. In the old-fashioned way, 12,000 barrels were considered an enormous cargo, but the efficiency of special construction and the private industrial line is demonstrated by the 30,000-barrel cargoes of the new tank steamers.

The growth of the bulk oil traffic is indicated by the tonnage of the fleets engaged in that traffic. According to the Bureau of Corporations, this tonnage is as follows:

Companies.	Vessels.	Gross tons.
Standard Oil Co.....	61	204,506
Standard Oil Co.....	18 *	11,367
Independent American.....	21	58,847
Independent American.....	8 *	11,367
Russian companies.....	30	96,559
Dutch East Indian traders.....	41	125,161
Burmese and Japanese traders.....	6	12,810
English tramp steamship.....	18	55,831
English tramp sailing vessels.....	4 *	8,209
French companies.....	2	2,525

¹ *Railroad Gazette*, 1905.



Captain A. F. Lucas—Standard Oil Tank and Barge Towing Service

Private Steamship Lines 207

Unclassified.....	9	12,707
Unclassified.....	4 *	4,224
Total steam.....	188	568,946
Total sailing vessels (*).....	34	51,866
Grand Total.....	222	620,812

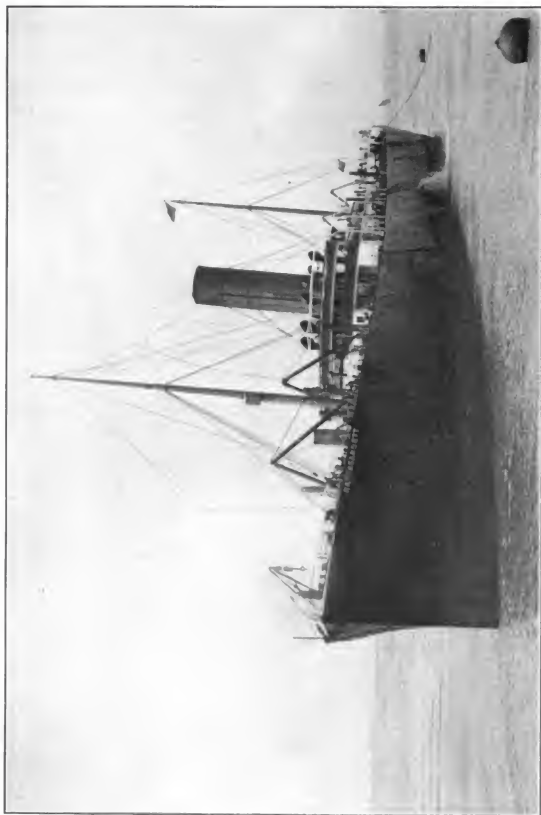
* Sailing vessels.

The enormous tonnage of this fleet of specialized vessels of peculiar type, for carrying one commodity only and belonging to a few owners, and nearly all of them merchant carriers, shows how in this age of common carriers the present merchant carrier, inconspicuous in his ocean work, nevertheless outranks by far his conspicuous prototype of a century ago in the actual amount of transporting that he does.

Nor does the above list of bulk vessels tell the whole story for petroleum. Many ordinary vessels are also used by the oil companies. The Oriental countries are heavy importers of American refined oil, and their markets, devoid of tank equipment, require it in small tin cans called cases. The transportation of this refined case oil has long employed a large amount of shipping, and the greater part of it has gone in full cargoes in sailing vessels. Oil alone comprises a high percentage of the value of American exports to China and much more than one-half of the total tonnage of the traffic. The Standard Oil Company for many years chartered other people's ships for this work, but some years ago it changed this policy and became sailing vessel

owners for the better marketing of its own case oil product. The oil company does not own enough vessels to do all the ocean work, and some are still chartered, but all are operated under one management, so that the oil company's vessels now sail from Philadelphia and New York for the ports of east Asia, and one ownership carries the oil from the well in the Ohio Valley to the Mongolian merchant in Shanghai or Yokohama. Inasmuch as the oil company had nothing for these sailing vessels to bring back, they have frequently aided the exchequer of the company by bringing back, from Calcutta, Manila, and other ports, any available cargo that might be obtained.

The asphalt industry in America is one with a multitude of companies, but beneath them is a simplicity of interests that sifts down to two rival concerns. The raw asphalt comes almost exclusively from the island of Trinidad and the northern shore of Venezuela. It is consumed in all of the larger American cities and many of the smaller ones, and also in Europe, South America, and elsewhere. The companies are international in their field of operation. New York, being a city with much paving, with a good harbor, and near many other cities requiring asphalt, is a convenient base for the operation of an asphalt company. This large traffic is much like that in oil. A line of steamers has succeeded irregular vessel movements and now regularly carries asphalt from Trinidad to Perth



Narraganset.—Anglo-American Oil Company

Amboy on New York Bay. There is even some effort made to have the ships get return freight and thus develop, as a strictly side issue, the services of a common carrier for the out voyage. The same company that operates the asphalt steamship line is constantly in the ship market to charter steamers on the single-trip basis, to handle any sudden increase of traffic for New York or to send a special shipment to other ports in the United States or foreign countries. The amount of this irregular shipment is very great, because of the fact that the paving contracts are constantly being let and executed in scores of cities, necessitating a very wide and constantly shifting field of operation for the paving companies and their steamship traffic, which is all managed from a common centre.

The production of anthracite coal in Pennsylvania has led to operations on a large scale. It is well known that the larger share of the coal is owned and mined by railroad companies, which get most of their income from coal freights. Much of the coal sent to New England goes thither in the company's coal fleet, which is regularly employed in plying between Philadelphia, Boston, and other New England points. This fleet consists of powerful tugs and barges or sea lighters that transport several million tons a year. The enormous extent and the divided ownership of the soft coal lands of the United States have not yet resulted in any such organization of the soft coal traffic, but it is

within the bounds of probability that steel barges will carry coal down the Ohio and Mississippi rivers, and across the Gulf and the Caribbean to soft coal markets along those shores in a manner analogous to the shipping of anthracite to New England. The present aggressive action of railroads in taking possession of bituminous coal lands in the Ohio Valley indicates that they will be in a position to take up this barge traffic if they so desire and are permitted to do so.

The traffic on the American Great Lakes is not classed as maritime, but the only difference is a matter of 3 per cent. of salt in the water and a barrier that keeps the lake ships from extending their voyages to sea. In its economic essentials it is sea traffic, and in the magnitude of the commerce, the size of the ships and the waters traversed, it ranks with, and in some respects outranks, the commerce between England and the near-by continent. This lake commerce should be discussed here because it possesses the world's most thoroughly organized and largest example of an industrial steamship line.

The United States Steel Corporation manufactures iron and steel in Pittsburgh from ore brought a thousand miles from mines beyond the western end of Lake Superior. This company owns the ore mines, the coal mines, coke ovens, and limestone quarries necessary to produce all of the raw material used. It also owns and operates the necessary railroads and steamship lines to carry all of these materials to the points of manu-

facture. The lake ore fleet must carry many million tons per year, and, owing to the ice of the winter, it has only about seven months in which to do the year's work. The largest of these ore vessels carry about twelve thousand tons of cargo, while eight thousand and ten thousand tons are very common sizes, and the new vessels are usually of largest type. This one company owns and employs in its own business over two hundred vessels with an aggregate tonnage that puts it in the class with the second-rate maritime powers. No ocean fleet in the world, with the possible exception of the unloading of the oil fleet, equals this in the speed with which its vessels are loaded and unloaded. The work is practically all done by gravity and machinery, and the ratio of the time the steamers are actually under way doing the work of going from port to port to the time they are at the docks has no equal in the general commerce of the salt seas. At the end of each lake and at other places there are opportunities for the giving of telegraphic orders to the captains of the vessels. The ease of communication, combined with the great number of the steamers, and the fact that they connect with the company's railroads at each end of their route, enables one man in his Pittsburgh office to manage this whole fleet, and order the vessels from place to place and dock to dock, as a train despatcher manages the trains on the tracks under his control. These lake ore steamers, sometimes carrying coal on the return voyages, are as absolutely a part of

the steel company's industrial organization as is a blast furnace or an overhead crane in a mill.

What is to be the future of the industrial or merchant steamship line? Is it to be eliminated again as was the merchant carrier of the eighteenth century? Probably not. The present private operator seems to be large enough in his operations to hold his own and grow and keep up with the growth of the ocean steamer.

The operating unit in each of the industries mentioned in this chapter seems to be enlarging and, therefore, becoming more able to maintain among its activities a private transportation system. The trade in tropical fruits especially is one showing rapid increase. It was stated on the best authority in 1901 that the imports of bananas had doubled every five years for thirty years.

Many forms of tropic agriculture adapt themselves to the type of large-scale production above described. Sugar plantations on the coast of Peru are owned by a firm having steamship lines to New York, where the sugar is marketed. The sugar plantation is a late addition to the list of activities of the firm. It began as an exporting house, but the late addition of productive industries is a suggestive move. In Chile the nitrate for export is sometimes carried in lines of vessels belonging to the firms manufacturing the nitrate.

These examples of incidental combination of ocean transportation and production, taken in

connection with the more formally organized services mentioned above, are suggestive of the continued growth of this form of organization in ocean transportation.

CHAPTER XII.

LINE TRAFFIC IN THE UNITED STATES COASTING TRADE.

THE United States coasting trade has always been composed of two elements and the line traffic in its service has been the sport of at least two circumstances.

The two elements of the coasting trade are, first, the local exchanges between the various parts of the United States, which are ever growing, and second, the collection of produce at convenient places for export, and the distribution of imports from greater to lesser ports. This foreign trade factor is an uncertain one, having fluctuated greatly from time to time in our history. This fluctuation arises, and with it the changes in line traffic, from the differing degree of development of our line traffic from the various American ports to foreign ports. If there are many ports on an equality of foreign connection there is little need for collection and distribution among them in connection with the foreign trade. If some ports have a great predominance in foreign line connections the coasting trade will centre at such ports and develop largely.

The second factor that has influenced the line traffic has been the growth of the American railroad system. At one time the coasting vessel was almost the only means of getting from port to port. Then came the railroad, which took away from the coasting vessel all possible claim to being a fast line connecting the various parts of the United States. This left the coasting lines only such traffic as they could snatch from the competition of the speedy railroads above and from the slower and cheaper schooner, and latterly the yet cheaper barge, below.

In its origin, coasting line traffic is closely akin to the ocean line traffic, as was pointed out in the chapter on the origin of line traffic. In the colonial time the coasting trade was light and with the small vessels of that day each colony traded direct with the mother country, more directly, indeed, than do many of the American commonwealths at present. In the era between the Revolution and the War of 1812, the same conditions prevailed and one port was almost as good as another. This was a period of great democracy among American seaports. New Orleans, Charleston, Savannah, Baltimore, Philadelphia, New York, Boston, and Salem were more nearly on an equality than they ever have been since. The difference in their population was surprisingly small. Each had that breadth of sea connection which the enterprise of her merchants brought; and it was a wide range, as these cities, with the exception of Salem, were the metropolises of States

which in the days of the confederation were not only politically independent, but also commercially independent and isolate except for the merchant ship that roved alike to foreign and to coasting ports.

The close of the War of 1812 changed all this. New York straightway, upon the declaration of peace in December, 1815, became the centre of packet lines to Europe, especially Liverpool, the great market for cotton and other American produce. By 1820, these lines had multiplied until there was a weekly sailing on regular schedule and the ships were the fastest on any sea. These New York packets carrying mail, passengers, and fast freight straightway put into our coasting trade the stimulus for regularity that ripens into line traffic. If the New York packet left regularly it was an advantage to reach New York just before she started, and it was desirable to get the European mail and passengers and goods started down the coast at regular intervals; so the New York lines were really the mother of the coasting line service that sprung up promptly upon their inception.

The New York foreign connections had an influence not measured solely by the founding of coasting lines, for they served also as a magnet to draw to New York the chartered vessels from the south Atlantic ports. This influence was not alone in producing this result, for the claim was also advanced that the New York merchant gave better credits and other inducements than

were to be obtained further south. Transportation, however, was no weak force in this drawing influence, and the decade 1821-1831, the ten years following the establishment of New York's weekly service to Liverpool, saw a marked shifting of foreign trade. The country at large, and particularly the South, was prosperous. The foreign trade of the port of New York increased 100 per cent. in eleven years following 1821, and that of Virginia with its tidal estuaries declined two-thirds, and so did that of South Carolina. This, however, did not mean a declining commerce, despite the alarm and the investigations by commission and convention. It was merely a growth in the coasting trade by which New York absorbed the foreign trade of smaller ports that had dealt directly with Europe in the epoch of the merchant carrier twenty years before.

New Orleans was far enough away not to be so greatly influenced by New York's maelstrom, and retained her commercial independence all through the packet ship epoch and practically down to the Civil War. The Gulf packet lines went to New Orleans, as did those of the Atlantic to New York and to a lesser degree to Boston. Until 1860 Galveston traded entirely through New Orleans, and the connection of New York and New Orleans was rather slow in founding. The reasons of this were that New Orleans was rather independent of New York in the foreign trade, and New York was rather independent of New Orleans in the coasting trade through

her ability to secure cotton, lumber, meat and grain, and naval stores at nearer ports.

From 1820 to 1840 there was a large development of coasting packet lines along the American coast from Portland, Maine, to New Orleans. The earliest of these lines appears to have been in 1820 from New York to the Southern ports. Baltimore had had a line to Norfolk as early as 1785, but this can scarcely be called a coasting line because it was entirely on inland waters. In 1826 Baltimore had its first regular coasting service by sea, a line to Savannah and New Orleans.¹

Upon the founding of steam connection between New York and Savannah in 1848 there were six packet lines connecting these two ports.²

The difficulties of sail navigation on such a windy, stormy, and dangerous coast as that of the American Atlantic made the line service of packets, at best, but irregular and undependable. Efforts were early made to put steamers in the coasting service, but the steamer in its origin was a river craft and its first success in giving that line traffic with a schedule having an arriving as well as a departing end, was in that part of our shore waters which partly resembles a river and which is also connecting with the Hudson, the original home of the steamboat.

Long Island Sound, being a kind of compromise, half sea, half bay, and part river, was a good place

¹ *Chronicles of Baltimore*, J. T. Scharff, p. 420.

² Morrison's *American Steam Navigation*, p. 448.

for the steamer to experiment with line traffic on salt water. In its traffic development, Long Island Sound was a sort of offshoot from the Hudson River, the first home of the steamer. For at least forty years the same boats were used interchangeably on the two bodies of water. During the War of 1812, boats built for the Long Island route to New Haven were unable for fear of the enemy to run on the sound and were put on the Hudson in 1814. In March, 1818, the two steamers built for the sound began a service from New York to Norwich, the steamers connecting with each other at New Haven, one attending to each end of the route. In 1822 they were withdrawn from the New York, New Haven, and New London route, because of the retaliatory law of Connecticut against the New York steamboat monopoly of Fulton, and sent instead to Providence and Newport. This action of the New York and Rhode Island Steamboat Company was regarded as hazardous in the extreme, because of the dangers of going into the open sea to round Point Judith. The venture was a success, and the forbidden Connecticut traffic was picked up at Long Island points whither it was taken in connecting sailing packets. The Providence Line kept on, and the two trips each way per week in 1822 were changed to four trips per week in 1825. In November, 1821, the New Haven Steamboat Company was organized by the shareholders of the packet company running between New York and New Haven and steamers were put on the route.

The efforts of sailing vessel owners to get a tax laid upon steamboat passengers failed in the sound States, but a new line to Providence in 1827 was a more serious blow to the finances of the pioneer company, because it cut the fare down from ten dollars to six dollars. In 1831 it was cut to four dollars, then to three dollars, but the next year it was seven dollars by each line.

By this time, line traffic by steamers was well established on the sound, and it has continued from that day to this. In 1835, when the railroad connecting Providence and Boston was completed, the sound steamers established schedule connections which were as good as those of the trains with which they connected, and such connection by high-class steamers has been continuous, although there are freight lines having no such scrupulous schedule connection with the railroads.

The thorough and efficient line organization of the steamers on Long Island Sound in 1830 was far different from the situation on those coasting routes that had to stand the full fury of the Atlantic. The twenty years 1818-1838 were a time during which the steamer was evolving from a river craft to a sea craft, and the short journeys along the Atlantic coast tempted men to try the coasting trade before the ship was ripe for it. For five years beginning in 1820 the steamer *Robert Fulton* plied unprofitably on the route from New York to New Orleans via Charleston and Havana. At the end of this time she was converted into a sailer. Between 1836 and 1839

steamers were run from New York to Charleston and from Baltimore to Savannah, and another attempt was made on the route to New Orleans. Two terrible disasters, coming in the midst of the great financial depression, caused all these attempts to be given up by 1839; and just at the time the Cunard and other companies were succeeding with their steamer lines on the Atlantic, the American coasting lines in the open sea came again to consist entirely of sailing packets. In 1842, there was no steam coasting line outside of protected shore waters, but the north Atlantic steam lines with their previously unknown precision made louder the demand for relief from the uncertainties of packet, and 1846 was the real beginning of steam service and therefore of regular line service between New York and Charleston. Spofford & Tiletson, shipping merchants of New York, contracted to carry the United States mail and despatched the first steamer in September. In 1848 there were similar steam mail contracts to Savannah and New Orleans. The service to Norfolk, which had been tried and given up in 1835, was permanently established in 1844 by the founding of the Clyde Line to Baltimore. Richmond was connected with New York in 1835 and Boston with Philadelphia in 1852. For ten years, beginning 1850, Philadelphia was actively connected with New York by the outside route.

The route affording the most excitement during this period was that to the Isthmus of Panama.

The gold rush of 1849 made plenty of travel in that direction and put a high price upon transportation in that direction. Lively competition ensued for the prize; sometimes the vessels stopped at Charleston or Havana or New Orleans, or all three, or none of them. Sometimes there was one line, sometimes there were several. The keenest competition was that between the Pacific Mail and the United States Mail Company, whose rivalry wound up in a consolidation in 1850 of the services to Chagres in the hands of the United States Mail Company.

In March, 1852,¹ there plied from New York seven lines of coasting steamers, one to Philadelphia, two to Norfolk, two to Charleston, one to Savannah, and one to New Orleans via Havana. There were no less than ten diligent advertisers of lines to the Isthmus of Panama making connection for the Pacific at Chagres or San Juan de Nicaragua. Some of these lines had only one steamer, and during this month of March, 1852, a total of twenty steamers left New York in the San Francisco trade; while thirty departed on the seven lines of the coasting trade, Charleston being the destination of nearly one-third of the thirty thousand gross tons involved. The height of the San Francisco rush was probably in February, 1849, before the isthmian routes were in full operation; during that month twenty-two

¹ *Railroad Gazette*, Aug. 15, 1902, p. 638. An excellent and thorough article by Ray Morris, to which the author is much indebted.

sailing vessels left New York for California with two thousand passengers. There were ten from Boston and other ports in proportion.

The date 1850 may be taken as marking the firm establishment of steamer lines on the transatlantic service, and it also marks their thorough establishment and extension in the coasting trade. In this work perfection followed quick upon the heels of installation, for the fifties mark the period of highest relative development of the coasting trade. The Collins and Cunard liners raced across the Atlantic to and from New York, and the wealthy, luxurious Southerners had no such service from their own ports to Europe. They must connect with New York; but the railroads were in that day a poor dependence, for they were new, rough and bad, breakdowns were common, changes were frequent, sleeping cars were practically unknown. What roads there were in the South commonly connected the interior with the nearest port rather than with the North. Hence the traveller who could sought the coasting steamer to New York whether he were bound to Europe or only to the Northern States. The coasting steamers that went to Charleston and Savannah were next only to the Collins Line in comfort and luxury, and they were as fast as the coasting lines have ever been until very recently. Their passenger traffic was extensive.

The Civil War, of course, entirely demoralized the trade and transportation with the South for a time. During a few years succeeding the war,

however, the lines resumed their *ante-bellum* importance. The railroads were still inadequate and the passengers still sought the steamer. At the same time there was general prosperity and a great traffic movement that brought fine shipping profits and led to the creation of many lines. There were in March, 1872, twenty-three deep-water lines in the place of the seven lines in 1852 at New York, besides smaller lines and sound and river boats. During this month these lines despatched 117 steamers with about four times the tonnage total of 1852. The average tonnage was almost exactly one thousand tons per vessel.

The predominance of New York in the transatlantic line traffic and consequently in the coasting lines caused it to become quite largely the clearing-house for the coasting trade. Go to New York and transfer was the easiest way. From the Civil War onward that city had steam connection with the coast of Maine at Portland, with the leading Gulf ports, and with the chief ports between. In 1859, the Boston Chamber of Commerce tried to improve the connections of its port, because the only way from Boston to points below Baltimore was by sailing vessel direct or by transshipment at New York. In 1854 the Merchants & Miners' Transportation Company, a combination of Maryland and Massachusetts capital, had started service which connected Baltimore with Boston without making a New York stop, and the agitation of commercial interests in Boston in 1859 had the service, which



Quaker City—Fast Coastwise Service, Civil War Period

also included Providence, extended to Savannah in addition to the two Chesapeake ports of Baltimore and Norfolk. Excepting the interruptions due to the war, this service has been steadily maintained, and is one of the few important services that do not touch New York, and the only one that steams regardlessly past that port. The other services on a par with this have been the Boston services to Maine and the Canadian Maritime Provinces and the Philadelphia lines to Savannah and Florida points, but these Philadelphia lines have not been steadily maintained.

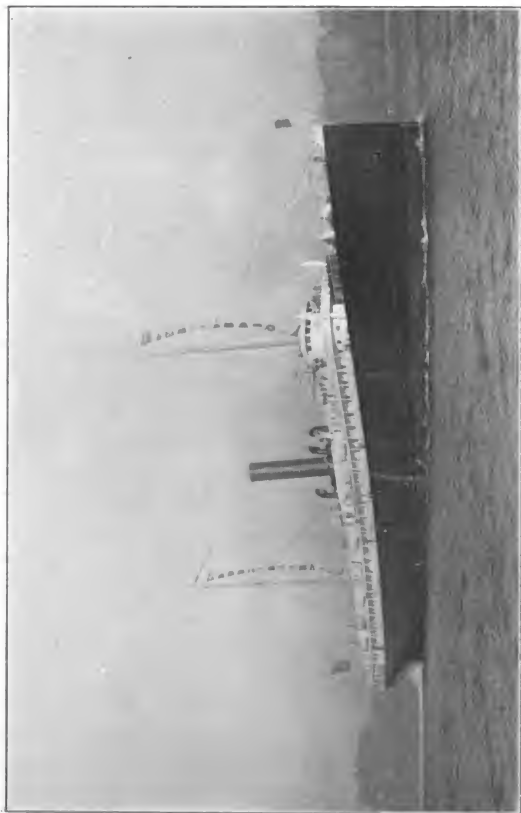
The decade following 1873 marks an epoch in the coasting line traffic. The country then suffered from general hard times with the accompaniment of reduced traffic, loss of dividends, failures, reorganizations, consolidations and forced economies. For the coasting lines, this was accentuated by the development of the railroads into effective competition for through passengers, mail and fast freight. This loss threw the coasters into a distinctly secondary position. They could not compete with the railroad in these respects, and it was recognized as being of no use to try, so the speed did not increase. Greater efficiency was sought in a larger and more economical vessel. The passenger traffic had changed from the general body of travellers to those persons who, for special reasons, wanted a slow sea journey. This brought about a considerable summer traffic and a negligible winter traffic.

These changes in conditions recorded themselves

in the statistics of the traffic. In March, 1882, the twenty-three New York lines of 1872 had become fourteen; the 117 clearances had become 109, but the average size of steamer had increased about fifty per cent. During this period, also, the railroads which had dealt such competition also began to annex the steamer lines, the best examples of this being the Morgan Line to New Orleans and the Savannah Line. Ten years later these were the most efficient lines on the coast.

From 1880 to the present there have been surprisingly few changes in the coasting line traffic, other than in its increase in quantity. The departures from New York in the month of March have been approximately as follows: 1872, 120,000 tons gross; 1882, 160,000; 1892, 280,000; 1902, 410,000. In 1872 Boston led by being the destination for over a sixth, with Norfolk and Charleston closely following. In 1882 Norfolk had a fourth, with Boston and Charleston considerably in the rear. Ten years later Norfolk was still first with more than a fifth, and Savannah and New Orleans following. In 1902 Norfolk led with a fifth of the whole, with New Orleans and Boston pushing it for first, and crowding each other for second place.

This growth of tonnage is essentially for the freight service, as passengers and speed have been steadily declining in the manager's mind, since the loss to the railroads of the mail service that occurred thirty years ago. Exceptions to this should be made for the Morgan Line (Southern



City of Savannah—Typical American Coastwise Steamer

Pacific), which connects New Orleans with New York in five days, and is a link in a transcontinental route, and also of the passenger service of the Old Dominion Line to Norfolk and the much advertised passenger line to Maine through Long Island Sound. The extensively patronized passenger boats of the Long Island Sound routes are not included in the above-cited figures of New York traffic, which are for deep sea vessels only.

Mention should also be made of the regular services that have been maintained throughout nearly the whole of the last hundred years between New York and Philadelphia by sea, and between Philadelphia and Baltimore via the canals during the season of open navigation. The Chesapeake Bay, with lines connecting Norfolk with Baltimore and Washington, is in the class with the Hudson River in respect to earliness of the development of lines, the frequency of service, and the type of steamer used.

The years 1906 and 1907,¹ following a long period of quiescence, were a time of interest and excitement in coasting trade circles. At the beginning of 1907 Boston had seven coastwise companies with lines to ten American ports between Eastport and Jacksonville. New York had twelve companies with lines to nineteen ports between Portland and Galveston. Philadelphia had five companies with lines to eight ports from Boston to Savannah. Baltimore had three companies reaching six ports, including Boston and

¹ *New York Commercial*, July 3, 1907.

Savannah. The interest of the year centred in the rapid and mysterious consolidation of at least nine companies in the hands of Chas. W. Morse. His plans were uncertain, but he was in a position to go far towards controlling rates where he had no competition, or to make lively war with the two great railroad coasting line owners, the New York, New Haven & Hartford and the Southern Pacific. These companies made some defensive moves. The latter company announced¹ its intention of ordering very large new ships and of improving the service and extending it to give Galveston and New Orleans connections for New York, Philadelphia and Baltimore, with stops also at Havana. The New Haven road purchased the Boston and Philadelphia steamship line and the fleet of the Merchants & Miners' Transportation Company.

The ten companies controlled by Mr. Morse in 1907 were: first, the Kennebec, Boston & Bangor Steamship Company with services from Boston to Maine points; second, the Eastern Steamship Company with lines from Boston to Portland, Eastport, and New Brunswick ports; third, the Clyde Line with twenty-one steamers running from Boston to Charleston, Brunswick (Georgia), and Jacksonville, from New York to Philadelphia, Charleston, Jacksonville, Wilmington, N. C., Georgetown, S. C., and lastly to ports in San Domingo; fourth, the Maine Steamship Company, which with the Eastern Steamship Company has

¹ *New York Commercial*, Feb. 15, 1907.



American Coastwise Steamship of the Sixties

twenty-two ships, New York to Portland; fifth, the Metropolitan Line, four ships, New York to Boston; sixth, the Mallory Line, eleven ships from New York to Mobile, Brunswick, Ga., and Galveston; seventh and eighth, two lines on the Hudson River; ninth, the New York and Porto Rico Steamship Company with nine ships; and tenth, the Ward Line to Cuba with twenty ships.

From the examination of such an array as this it becomes plain why the newspapers referred to Mr. Morse's almost complete control of the Atlantic and Gulf shipping. He had more than half of the companies, much more than half of the ships, and a complete equipment of services to the whole coast and all of the Greater Antilles except Jamaica. The lines that remained without the grip of Mr. Morse or a strong railroad company were few and comparatively insignificant. The developments of the enterprise were watched with great interest by persons taking cognizance of the coastwise situation. Despite the many theories few anticipated the sudden and spectacular toppling of the whole structure.

The structure itself was impressive, but showed its weakness from afar. Physically its anatomy was good. With one focus at Boston many lines radiated to the Eastern ports. New York, the greater of the two service foci, had a fine array of lines to the southward, including as extreme ports San Juan, Porto Rico, and Vera Cruz.

With these southern lands there is great and growing trade. The service groups were finally articulated by lines connecting New York and Boston.

The elements of weakness were financial. Some of the purchased companies were secured at a high figure. The whole was held by a holding company, "The Consolidated Steamship Lines Company," which had an ambitious scheme of capitalization for replacing \$86,757,000 of securities with \$148,757,000. Watering stock on land is one thing, but watering it on the water is another—it seems to be a case where like cures like. The real property value of the ninety-seven steamships, sixty-five lighters, seven tugs, and the wharves, piers, etc., was put at \$45,000,000 by the bankers who tried to promote it on the basis of prospective profits because "The fundamental idea of this consolidation was the benefits to be derived from concentration of control which would result in the working of all lines under one management, the securing of the lowest possible cost of operation, the elimination of idle tonnage, the curtailment of pier room, harmonious working arrangements between the various lines, the most favorable price for the purchase of supplies and fuel, the lowest cost of insurance, repairs, legal expenses, etc."

High purchase prices, watered stock, overbuilding of new ships, and strong competition with strong rivals were bad, but, despite these drawbacks, some well-informed steamship man-

agers think that he might have succeeded had he stuck to the shipping business. But this was not to be. Mr. Morse busied himself in Wall Street, where high finance, trust companies, pyramid banking, corners in copper and alliances with Mr. Heinze caused his financial downfall to be one of the first symptoms of the 1907 panic. The steamship pyramid fell with the banking pyramid, and by the end of October, 1907, the great holding company of the year before had become an empty shell. Its \$120,000,000 of securities were worth \$6,000,000, its New York offices even were closed up and its headquarters removed to Boston. Within a week the underlying companies were transferred to their old managements. In explanation of this move, H. P. Booth, President of the Cuba Mail Steamship Company, said: "The different lines forming the Consolidated Steamship Co. will in future be run independently, just as they were before the consolidation. We shall attend to our business just as if there had never been a consolidation, and the other companies will do the same as we do." Any earnings after paying interest on the underlying bonds were to go to the Consolidated Company.

But this reorganization was insufficient and by February, 1908, the clamor of the holders of unpaid coal and other bills was so great that receivers were appointed in three States, and the final dissolution of this greatest of coastwise combinations into its original elements was assured.

For a time it was questionable even if its promoter would be able to maintain his personal liberty while attempting to extricate himself from his wonderful financial tangle.

PART II.
The Rates of the Ocean Carrier.

CHAPTER I.

CHARTER FREIGHT RATES AND ATTEMPTS AT THEIR CONTROL.

THE sea is free, and in a consideration of the principles controlling its freight rates the cast-off theories of land transportation are found to apply to its principal lines of trade. The most pronounced change in the theory of land transportation is the growing recognition of the fact that competition is not the controlling force that it was once supposed to be. Upon the ocean, on the other hand, the theory of free competition still finds application.

The reason for this difference between land and sea transportation will be most easily seen if one considers for a moment what constitutes the unit of transportation by land and by sea. Upon the ocean it is a single ship. Ports are open to all; the ocean is a free and toll-less highway upon which the ships of all nations may and do come and go at will. Upon land the railroad train renders the similar carrying service, but the carrying unit is the railroad itself complete from end to end. The equipment for carrying a ship's cargo three thousand miles is not ten per cent. more costly than that of carrying it across a narrow

channel. The cost of equipment necessary for supporting a train may be roughly put at fifty to one hundred per cent. of the value of the train for every mile it goes. Before a train can be run three thousand miles there must have been years of labor for the building of three thousand miles of railroad, requiring the investment of one to two hundred millions of dollars in roadway, terminals, branches, feeders, repair shops, etc. A new competitor for this same three thousand mile service must expend another hundred or more millions prior to running the first train, and as population increases, the cost of railroad building increases because of higher land values. Equipment for sea carriage, on the contrary, becomes cheaper year by year through the process of invention. Ocean transportation investment requires the ownership of vehicles only—movable capital. Railroad transportation investment is chiefly in the form of fixed capital—roadway, structures, and terminals. This heavy investment of fixed capital must earn dividends where it is placed or be an almost total loss. In contrast to this the steamship or sailing vessel capital is the most mobile in the world. The world ocean is open to it, and it can speed away to the shore of any and every maritime country upon the surface of this terrestrial globe.

A discussion of ocean freight rates must be introduced by a brief reference to the two distinct methods of operating ships and carrying on the transportation business: (1) Charter traffic, in

which the unit of operation is a single vessel working independently; and (2) line traffic, in which many ships combine to render one service.

1. *Charter Traffic*.—The fact that the sea is an open highway enables any navigator to go where he will and engage singly in the carrying trade, if he wishes to do so. This absolute independence of the single ship has its economic advantages. No costs need be incurred except those necessary for the particular traffic in hand. If the shipper can deal in ship-load lots, he has no need of a liner. He hires a vessel of his own.

The primary object of tramp or charter traffic is cheapness with efficiency. The primary qualifications of line traffic are regularity and speed. These entail costs, and there must be higher freight rates to make line traffic profitable. There is room for both services. The exacting traffic in manufactures and passengers is increasing, and with it the demand for line traffic and corporate organization. Along with this is the growing traffic in cheap and bulky goods requiring the service of unorganized cheapness. The trade of the present comprises many million tons of cheap and bulky raw materials which must be transported in great quantities and at the lowest possible cost. These usually go in ship-load lots as charter traffic.

If steel rails, iron, locomotives, or other heavy manufactures are moved in sufficient quantities, as is occasionally the case, they may become charter traffic, but the staple articles for this type

of ocean work are grain, lumber, coal, ores, sugar, cotton, petroleum, nitrate of soda, jute, etc. This is absolutely a world trade. The chief market for wheat is Great Britain and the nearby parts of the continent, but this one commodity is shipped from the Atlantic ports of America from Galveston to Montreal; from San Francisco, Columbia River, and Puget Sound on the Pacific; from the Argentine Republic and India, from Russian ports on the Baltic and Black seas, from the Danube River, and sometimes from Chile and Australia. Cryolite comes from Greenland; nitrate of soda from Chile; nickel ore from New Caledonia; iron ore from Arctic Norway, Sweden, and tropic Cuba; jute from Calcutta; wool from New Zealand; sugar from Germany, Cuba, Java, Brazil, and Peru. There is no ocean, no zone, no continent, no great island that does not contribute its threads to this world mesh of routes, including hundreds of ports to and from which sail thousands of ships, each ship operated independently and usually as the result of a particular bargain between the shipper and the carrier. Here competition reigns.

A cargo is in the warehouse and a ship at the anchorage: what shall be the rate if the ship takes the cargo? Both parties are after profits. If there is a cheaper ship in sight, the shipper takes it. If there is a better cargo in sight, the ship takes it. If cargoes are plenty and ships are scarce, the rates will rise to the point where it is cheaper to let the goods lie rather than move

them at the increased rate. A three hundred per cent. rise in rates has occurred within a fortnight, although plenty of ships were lying idle in the next ocean; but they happened to be fifty days away and the goods had to go within a month. In this case, for that particular traffic the idle ships did not exist, although the next month they were on the spot and rates came down again to their former level. If ships are plentiful and cargo scarce, the ships bid for the cargo and rates go down and down. If profits cannot be made, the manager aims to cover expenses; if not whole expenses, then enough of the expenses to make a small loss rather than a great loss, and he ties his ship up only when his operating losses exceed the loss resulting from absolute idleness with its rapid depreciation and interest and other costs.

The charter rate is a marginal rate. If there are ten ships and five cargoes, the cheapest ships get the cargo. If there are ten cargoes and five ships, only the highest paying cargoes can be moved. Fluctuations are, therefore, sharp and there seems to be a present tendency for rate depressions to be prolonged. There are several reasons for this prolongation. One is the appeal that the shipping business makes to the gambling instinct. There are seasons of great profit; ships at times pay for themselves in a year. There are also years when there is only loss, because the great prizes have served as a magnet to draw too many people into the shipping business. Again,

it requires no special knowledge. A person needs only some capital and the acquaintance of brokers who will buy him a ship and other brokers who will secure her cargo on commission. It is as easy as buying stocks. A novice with money could begin in an hour after he reached a long-distance telephone anywhere in the United States or England.

It is customary in the business, especially in Great Britain, for an enterprising manager to form a stock company and build a few ships which the promoter manages on a salary or commission. The ship-builder or the public will often loan money on these ships, so that the company has a divided responsibility in stock and bonds much like an American railroad. The greater number of charter boats are apparently owned outright; but when depression strikes the business and there is any tendency toward maintenance of rates the manager of a mortgaged fleet is goaded to desperation by the knowledge that the holders of the bonds and probably of the stock also must have some satisfaction or his ships will be foreclosed and his company and his business wiped out. Thus the mortgaged ship is a rate depressor.

Another factor tending to prolong depression is the cheapness of new ships. When the demand for new ships falls off, the ship-builders face the necessity of turning off their men. To prevent this they will build ships at a very low figure and keep their force together for better times.

These changes in the price of ships and in the prosperity of the shipping business quickly respond to the state of the carrying trade. In the prosperous year 1900 the chairman of a British ship-building company in addressing his stockholders said, "A ship which four years ago could be built for £70,000 to-day would cost £100,000." In August, 1900, a freight steamer eleven years old brought at auction £30,000. In November, 1901, after a break in rates, the same steamer sold for less than £18,000.¹

During periods of cheap ship-building the manager of chartered vessels sees a good opportunity to provide himself with some thoroughly modern ships at a low figure and be ready for the hoped-for advance when it comes. If it does not come immediately, his new vessels, possessing all the latest economies and low capital cost, can be operated more favorably than the older, less efficient, and more costly vessels of his rivals. The result of this reasoning and of the action which grows out of it is that the amount of building does not readily respond to depressions in rates, and these depressions drag on to great length because commercially unwarranted ship-building continues in spite of them. The low rates which resulted from a number of causes in the spring of 1901 can scarcely be said to have had any relief till the autumn of 1905. Any signs of higher rates brought out idle ships from their

¹See *Lloyd's Weekly Gazette*, Oct. 5, 1905, p. 638, and *Fairplay*, Nov. 21, 1901.

moorings, and these ships promptly put the rates down to the dead level.

Why do not the owners of vessels for hire agree upon rates and maintain them? This problem is akin to that of universal peace among nations and really does involve the harmony of many nationalities. Will the Greek, the Turk, the Chinaman and the Hindoo agree with the men of Liverpool and London, New York, Hamburg, Marseilles, Genoa, and Christiania, and will they all adhere to the agreement if they make it? What if the agreement leaves a man's ship idle while the other ninety-eight per cent. of the tonnage is busy with profitable voyages at the agreed rate? By the slightest shade of undercutting he can be deluged with cargoes. Will he abide by loss that others may profit? Even if the ship-owners of the world should agree, and keep their agreement, there are a thousand other men now in their employ who know the business. Capital awaits investment. Ship-builders will build ships for any responsible party in a few months. Ships are always being sold, so that you and I may buy some to-day, place them in the hands of a broker or agent whose business it is to find cargoes and manage ships, and behold, there is competition again upon the sea. The biting and absolutely controlling force of this competition lies in this: If ninety-eight per cent. of the shipping should be operated under a maintained rate agreement that gave good profits and there arose any dearth of cargo, the two per cent. of independent ships

with a rate a shade below the agreement rate would be desperately busy and profitably employed. All the idleness would be with the agreeing ships, the new building would be with the outsiders, the increase of idleness would be with the agreeing ships until their union perforce broke down because of the large number of idle ships in the union and the prosperity outside of it.

The line separating profit and loss seems to set the limit to which charter rates can possibly be raised by agreements among carriers. Above that point there is no need of agreements, since, if cargo is more abundant than ships, rates are high from natural causes, and if there is an excess of tonnage, the rate cannot be upheld for the reasons previously stated. This statement is borne out by the history of attempts at rate control and by the united opinion of ship-owners themselves.

The lack of successful rate control by the owners of charter vessels cannot be charged to lack of experience in co-operation. There is a large number of ship-owners' associations in all large ship-owning countries, and especially in England, where the bulk of this class of shipping is owned. In London alone there are at least nine such organizations. These associations exist for nearly all the purposes that can be attained by co-operative action. The annual report of one of the Liverpool associations for 1905, for example, describes efforts to effect favorable legislation in London; to change local harbor regulations; to persuade the govern-

ment to take action on the policy of various foreign governments toward British shipping; to change charter party forms (form of chartering agreement); to change coal-trimming charges at Cardiff; to reduce Suez canal tolls, etc. One strong and growing association exists only to fight organized labor, and many associations are concerned chiefly with the ever-present insurance question. They are often perfectly willing to spend £5,000 sterling in combating a case involving £100 and a precedent. One of these bodies—the North of England Protecting and Indemnity Association—reported that on December 31, 1905, there were enrolled in the association 2,470 steamers with a tonnage equal to about half of the total under the British flag. For some purposes at least the ship-owners know how to co-operate.

The recent prolonged depression in freight rates which began in the spring of 1901 produced two serious attempts at charter rate control of an international character, and their results help to show the limitations upon such efforts and their essential futility as producers of profitable rates. The condition of the shipping business in this period was such as to drive men into agreements, if any economic force could produce that result. The shipping journals were full of letters, articles, and editorials proclaiming the unprofitable conditions of the trade. The president of the Clyde Steamship Owners' Association declared in his annual address, January 20, 1903, that

it was hardly possible to sketch out a round voyage on which a freighter could pay expenses. A British ship-owner of much experience stated in March, 1905, that "on the average, British sailing ships of over three thousand tons (dead weight) have lost about £1,000 each per annum during the last three years and that smaller vessels have fared almost as badly." On December 29, 1904, *Fairplay* summarized the report of forty-nine tramp vessel owning companies for the year then ending. They had 393 vessels of 1,184,358 gross tons, capital £10,253,752 and debt £3,157,128. Assuming five per cent. interest on the indebtedness and the customary five per cent. for depreciation, they would have required £140,040 more than their total earnings to avoid a loss even if no allowance be made for income tax and management expenses. A month previous to the publication of the digest of these reports, the same journal had declared editorially that, "taken upon the whole, tramp tonnage is being run at a disastrous loss." At the end of 1903 a similar analysis of thirty-six companies had showed results like those cited above, and six of the thirty-six had actual cash loss for the year on operating expenses, to say nothing of expenses of management, interest on bonds, depreciation or dividends.

In such times as these anything tending to improve the condition of rates was eagerly snapped at. The French bounty-fed sailing ships, receiving a government bounty that paid almost enough to run them, were in a position to make

competition exceptionally ruinous for British and German ships of the same class. There was an international conference of these sailing-vessel owners in Paris in December, 1903. It drew up a constitution for the "Sailing-ship Owners' International Union," which was to become operative when subscribed to by owners of seventy-five per cent. of the shipping involved. The organization, with headquarters in London, was formally launched in June, 1904, when the first rate committee announced the schedule of minimum rates for the guidance of its membership. The circular sent to the members in June, 1905, states that "the Sailing-ship Owners' International Union . . . has only to do with vessels of one thousand tons net register and upwards, and the control of the union is in the hands of an international committee, the members of which are appointed annually by the various nationalities in agreed-on proportions.

"Although it is obvious that much good work might be done in many directions by such an international association, the only object of the union for the present is the binding together of sailing-ship owners not to accept less than certain agreed-on rates for freight for the principal homeward voyages in which sailing ships engage, and members of the union are bound under a penalty not to charter their vessels at a lower rate than the minimum prescribed by the committee of the union for any particular voyage.

"The intention of the union is not to push up

freights to such an extent as to oppress shippers or check business, but to prevent the ruinous competition which has come into the business and reduced freights to such a point that they could not possibly pay expenses, and in many cases were leaving heavy losses to owners.

"The union was originally started on the basis of not less than seventy-five per cent. of the British, French, and German tonnage interest being included, but for 1905 the percentage has arisen to eighty-seven per cent."

By November, 1905, the seventh freight circular had been issued, but most of the rates had remained unchanged, except to permit a small reduction to cargoes of over 2,500 tons. In 1906 the organization was still in healthy existence, but its limitations become apparent when it is noted that it applies only to the longest voyages, namely, the Pacific coast of North and South America, Australia and New Caledonia to Europe, and that it covers only the return voyage, leaving absolute freedom for the outgoing voyage and for all other trades.

A ship-owner who had been influential in promoting the union said of it in a letter in December, 1905:

"This Sailing-ship Union would never have come into existence if it had not been for the French sailing-ship bounties and the absurd manner in which these bounties are paid. If the French ships had been competing on level terms, there would have been no need of any union. So far

as I know there has been no attempt on similar lines to control sailing-vessel rates in the past, and I know of no combination among ship-owners which has held together as this one has done. The minimum rates adopted are intended to prevent loss rather than make gain. In most cases they are lower than cost, taking into account the outward rates that have been ruling, and which, of course, come into the calculation for the round voyage. The idea of the union, however, has been, if possible, to steady the freights, interfering as little as possible with the ordinary course of business and the natural fluctuations of the market. At the present time, unfortunately, the only place from which anything in excess of the minimum rate is obtainable is from Australia, the conditions of the markets on the Pacific coast both of North and South America being such that the minimum rate is barely obtainable. The minimum rate applies to vessels of 2,500 tons, and for every increase on this size a slight reduction is allowable, as it was found that the larger ships could not get employment as long as the smaller vessels were available on exactly the same terms.

"As far as the members of the union are concerned, the minimum rates have been maintained wherever they have been fixed, say west coast North and South America and Australia. Unfortunately, owing to the want of cargo on the west coast of North America, and the accumulation of tonnage in South America, various union ships have been unable to get the minimum rate and

have required to move in ballast to some other part of the world where prospects were better. The small percentage of ships still outside the union, moreover, has at various times caused trouble by cutting in just under the union rate. The prospects are, however, that for next year fewer ships will be outside the union."

An owner with a fleet of vessels in the union states its advantages thus: "I think you might put it that they provide for a small loss rather than a great loss. This has undoubtedly been for the advantage of sailing-ship owners." The advantages of being among the few outside the union were shown by freight quotations at this time. The *San Francisco Chronicle*, January 28, 1906, stated that "apparently anything willing to take less than combination rates is promptly picked up." On February 18th, the same journal stated: "Freight rates continue lifeless to the United Kingdom from the north as well as from here. Charterers are not willing to pay combination rates, and it makes a deadlock for the present." That deadlock means ships lying idle in the harbor, eating up the owners' bank account. If that were being tried when a two per cent. cut on a *profitable* rate would give employment, it is not likely that the union would long survive.

The small scope and importance of this union as a force in the control of world rates appears from considering that it is limited (1) to minimum rates which are on a basis that affords no profit

(*e. g.*, wheat 22s. 6d. from San Francisco to Liverpool); (2) to certain long voyages; (3) to returning voyage only; (4) to vessels of certain size only; (5) to sailing vessels only, when sailing vessels all told are not now doing six per cent. of the work of ocean transportation.

In January, 1907, this organization seemed to be on the verge of final dissolution. Strange to say, or rather, quite naturally, its embarrassment seems to have resulted from a burst of prosperity attendant upon the rebuilding of San Francisco after its destruction in April, 1906. There was a great demand for coal, cement, and steel which doubled the out rate from Europe from fifteen to thirty shillings per ton. Under the normal conditions of trade, the rate outward from Europe is a by-product rate, a ballast rate. The larger movement of freight is from the Pacific to the Atlantic, and the ships take back anything they can get at any rate they can get, or as alternatives take ballast. That is why the sailing-vessel owners' union made no attempt to control the out rate.

The San Francisco disaster suddenly reversed things. So many ships went out with building material that there was a plethora of shipping seeking return cargo, and, having had the unusual experience of making profit on the out freight, they were willing to take a by-product rate home again. This the minimum agreement prohibited. "This standard has been circumvented by vessels being fixed on a round freight from United King-

dom or continent or from New South Wales to west coast and home to United Kingdom or continent.”¹

One week after the above sentence was published in London, the Ship-owners' Union sent out on January 11th a new rate circular to members saying that there would be no change in the minimums last announced except that the nitrate rate to the United Kingdom and continent would be suspended from January 14th. This was a very extensive exception, being quite half of all that the union stood for. Lloyd's Liverpool correspondent spoke of friction in the association, of its frequent meetings, of rumors of German withdrawal. “Indeed it is felt,” he continues, “in some quarters that its breaking up is only a matter of a very short time.” The abandonment of the nitrate rates was apparently the beginning of the end. This, however, proved to be a continuance of life rather than the death rattle, for the organization was still in a normal condition (minus nitrate rate) in February of 1908.

The same conditions of depression that united the sailing-vessel owners of Paris brought about a somewhat similar conference of steamship owners in Copenhagen in February, 1905. The success of the sailing-vessel owners was one of the reasons that led to the assembling of those interested in the commerce of the Baltic and White seas. This narrow geographic unit has corresponding to it what might also be called a commodity

¹ *Lloyd's Gazette Weekly*, 1907, p. 10 and p. 41.

unity also. The trade is predominantly in wood and lumber, with coal as return freight. The great world markets for over-sea lumber are the United Kingdom, Germany, Holland, Belgium, and France. This import trade amounts to more than fifteen million tons, and less than a fifth of it comes from across the Atlantic. The remainder, or more than twelve million tons, is shipped from Norway, Sweden, and Russia. This is one of the greatest items in the world's sea trade.¹

This traffic, while international, is little greater in geographic extent than is the traffic of the American Great Lakes. Some of the leading ship-owners, dissatisfied with unprofitable timber-carrying, conferred for three days at Copenhagen in February, 1905, and fixed a minimum scale of rates for the various ports, and then went back to their various countries to work up support for the scheme so that it might be put in force at another conference in June. In this they were successful, but only as regards the outgoing rate on lumber. The total vessel tonnage affected by this agreement is only about 1,612,000 divided among 1,048 steamships. Although this Baltic and White Sea agreement is purely local in character it is the most comprehensive among charter steamship owners that has as yet been seriously considered. This organization has had no revolutionary earthquakes to upset its plans and is

¹ American wheat exports amount to from four to seven million tons per year, and sugar (about two million tons) is our heaviest import.

now entering upon its third year in better shape than the Sailing-vessel Owners' Union, which was its prototype. The Scandinavian winter makes the Baltic trade quite largely a summer season trade. In the season of 1906 the agreed-upon rates were maintained, and on April 12, 1907, there was another meeting at Copenhagen to arrange for the ensuing summer. Much exhortation was given the members to insure their doing nothing that would increase the difficulty of maintaining the rates.

This organization has busied itself much with work of the kind usually taken up by the various ship-owners' associations of Great Britain, namely, the establishment of favorable and uniform charter parties. These blank forms or contracts are exceedingly important in such an organization, for by them it would be easy to name a uniform cash consideration and bring about practical discrimination by varying the clauses about measurement, loading, discharge, or insurance of cargo, etc.

These two rate agreements, the small and weakly newborn offsprings of the most profound shipping depression of modern times, seem but to emphasize the controlling force of free competition in deciding the charter rate, which is a world rate. If the agreeing Baltic carriers should push their rate much above the general level, they would probably be greatly embarrassed, and the timber-shippers greatly pleased, by the appearance of ships sent in by the hungry and enterprising

Greeks, Hindoos, and other ship-owners from the remotest ends of the earth. The Baltic agreement like the other has been a defensive rather than an offensive agreement. It has fought for the prevention of loss rather than the exaction of profit.

CHAPTER II.

FACTORS AFFECTING OCEAN LINE FREIGHT RATES.

THE last chapter emphasized the freedom of competition and freedom of action that existed for the advantage of the man or firm who could load an entire ship. There is a radical difference in the rate question facing a man who would ship goods over sea in less than ship-load lots. He is necessarily dependent upon some form of co-operative enterprise whereby his small freights may be combined with others. He is the natural meat of the line carrier and he must pay the current rates—the line traffic rates.

Rates in line traffic differ at many points from the full-cargo traffic, yet they show the working out of the same principles. Competition is often present and the process of dickering in the bargain for each shipment is common. There is no more uniformity of rate for all the goods on a line steamer at one time than there is for all the many shipments that may fill a train. Valuable goods are charged a high rate and cheap ones a low rate, and different shipments of the same article often have different rates. A line steamer out-

ward bound from an American port usually derives its freight profits from such commodities as machinery and manufactured articles, provisions, oil cake, flour, and other prepared food-stuffs. Grain is also usually taken, but at rates that are rarely profitable and always below the full-cargo rate for grain. Grain is heavy, but easily handled, because usually handled in bulk, and it makes very desirable ballast to steady the ship. Accordingly the policy is to fill the ship as full as possible with good paying freight and finish her off with grain, some hundreds or thousands of tons, as the case may be. The grain-shipper does not especially desire these small irregular shipments. If the European grain market is favorable at all, it is favorable for a shipload of grain, and if the shipper must ship less he will have a concession in rates. This is the more easily obtained because he knows that the ship-owner wants it to serve as ballast. Hence it comes about that the line steamers carry a certain and variable amount of grain at lower rates than the tramps.

The variety in rates is further increased by the practice of the managers of some lines to make as many long contracts as possible, sometimes for a year or a season, and secure other freight in advance during a certain month or within a certain week. The year contracts and the month contracts will probably differ in rate, and they are both likely to differ from the rate current at the time of sailing. The last shipments are

contracted for in the light of the then existing market conditions, and may be high or low, according to the abundance or scarcity of freight at the time the vessel is finishing her cargo. If freight is scarce the final rate may be lower than the long contract rates, or if abundant the rate may rise. Freight may be shifted from one line to another so easily that it is actively sought. All the companies engaged in the transatlantic trade have agents in the commercial centres like Buffalo, Chicago, St. Louis, and these agents in turn have their local connections. If freight promises to be scarce for a certain scheduled sailing, telegrams will be sent to the inland agents or sometimes a personal representative will be sent from New York, Boston, or Philadelphia to Chicago or Minneapolis with power to make such contracts as he finds necessary to secure the freight for the otherwise empty space. So it is that competition dominates also in line traffic in those trades where combination has not relegated it to the limbo of history.

The fact that the steamship line represents an organized business gives it a tendency to greater steadiness of rates even in competition than prevails among the chartered vessels, but if fluctuations do not come as quickly they come as surely on routes where there is competition for the work.

As with the tramp, so with the liner—the controlling rate-making fact is the fundamental freedom of the open sea, the highway of the

nations. With the open roadway of the sea exists freedom of port facilities, and for all line traffic the fundamental rate-governing force is competition in the form of charter rates. If the line rate rises, tramps may flock in and even it up. This was clearly stated by Sir Thomas Sutherland at the sixty-third annual meeting of the stockholders of the Peninsular & Oriental Steamship Company in December, 1903. In commenting on the low rates received that year by the line steamers of his great company, he said:

"But, as a matter of fact, it is the world's tonnage at large, the cargo-carrying tonnage of the world at large, which dictates, or rather determines, the current rates of freight both by cargo steamers and by mail steamers, and we are simply dragged into the wake of that great movement, as, I suppose, the great American combine¹ has already discovered by this time."

This statement of the influence of the charter vessels upon the rate for line ships is very easily understood by noting the ease with which a considerable share of line traffic may be diverted to charter vessels or charter traffic to line vessels if the gap between the two services becomes too great in one case or too small in the other. Within certain limits the two must rise and fall together.

¹ A reference to the financial difficulties of the International Mercantile Marine Company, which, despite its great size, had had little or no beneficial effect on rates, to the great surprise and discomfiture of its organizers.



Moldavia—Peninsular & Oriental Express Service to the East

This influence of charter upon line rates is the wide-reaching influence of world rates upon each other. It should not be construed into any statement of similarity of service in general. The tramp competition exerts this influence by taking the line freight at the baser end of the traffic list. It also makes easy the formation of new lines, for the fact should not be overlooked that many freight lines are merely groups of chartered steamers, and if steamers get very cheap, and line rates stay high, there is the great temptation to rush in and get a share of the good things.

Despite this competitive influence line traffic upon the seas presents several distinct contrasts with the charter traffic in the matter of rates and the ease and extent of the competition which has been considered. One of those differences arises because of the size of the unit of competition. In charter traffic the unit is merely a ship, while in the line it is a number of ships—enough to give a rival service. This may include a number of large and expensive ships and an organization of agents on the land to manage and solicit traffic. This fact of the size of the unit is a deterring influence in competition merely because it is easier to do a small thing than a larger one of the same kind.

A second difference is that line competition has an element of vindictiveness, retaliation, or penalization unknown in tramp competition. The tramp can cut under the current rates, get a cargo, and go without suffering from the direct rate

effects of its action, because there is no retaliation possible. If one line goes under the existing rate, it is almost certain that the others must do it also to get their share of the traffic. Then no one is any better off than before; all are worse off from the reduced income, and are ready to punish the party responsible for the loss. Consequently the rate-cut among lines usually leads to a rate war during the continuance of which both parties lose heavily. There is accordingly often a common rate without any formal agreement. No one wants to cut the rate and run the risk of a rate war. This situation thus resembles more closely an armed truce than any other relationship.

A third difference between the competition of the two types of service arises from the irresponsibility of the tramp manager with regard to demoralizing the market. As each bargain is a law unto itself, the manager may demoralize the market by his rate-making and sail his ship away into the great world. Its next contract may be made three months later in the antipodes, and under other conditions, probably little if at all affected by the rate resulting from the manager's last bargain. It is otherwise with the liner, which is practically fixed to a certain route, ordinarily sails from a certain port or series of ports, and comes back again to repeat the same voyage. The line manager who cuts rates must suffer the consequences, because his line continues to move upon the waters he has troubled, and he

must do business in that port and must deal with the demoralized rates. The line has customers whose interests must be protected. Shippers, of course, prefer the regularity of the line; and the natural law which makes the tramp irresponsible and the liner responsible forces a certain amount of parallel if not united action among the managers of lines.

The common knowledge among a community of shippers drives to common action. It is necessary and inevitable that all ocean lines competing in the same port know what the others are doing. It is necessary because, if they did not know of the actions of rivals, one carrier, by cutting the rate the smallest shade, would get the lion's share of the business. It is inevitable that they know, because of the constant search of the shippers and their brokers for cheap rates, and their diligent efforts to get contracts at the lowest possible rates.

Starting with this fact of common knowledge and parallel action among obstinate rivals there is great variety in the stages of mutual action among steamship lines, ranging from rate agreements and division of territory to freight and profit pools. Theoretically, it is easy to control the rates or traffic conditions among ocean lines. All that is needed is that the ocean lines that might compete shall agree on conditions and maintain them. In some trades, this is practised in all its simplicity, but the larger the trade the greater the difficulty, a difficulty amounting in the case

of the transatlantic trade to practical impossibility so far as rates are concerned. Such at least has been the case in the past.

This Atlantic situation, which will be presented in a special chapter, is an exception in the carrying trade.

The control of ocean line rates within certain limits by the carriers has been very widespread of late years. It may certainly be called the usual condition of affairs, for it prevails over much the greater part of the surface of the world's great sea. It should be noted that this reference is to the proportion of the ocean's surface, not to the proportion of its trade. The very heaviest trade is not yet controlled, as are the smaller trades which reach out to the remoter parts of the world.

The ocean steamer has made easier this line rate control, because it has enhanced the superiority of line sailings over independent sailings. In the old sailing vessel days, the superiority of the lines of uncertain packets over the tramp sailer was much slighter than that of the present precise steamer over the occasional rival. The slowness, irregularity, and undependable quality of the sailing vessel service gave the single ship an equality which it has lost in this day of steamer lines, when the importer is in instantaneous touch with the world through the cable, and knows when to count upon the arrival of the schedule steamer. Thus the importers of the world have become accustomed to an unprecedented speed and reg-

ularity in their business dealings which makes them less willing to abide by the service of the tramp, even though it should be a vessel of high efficiency. In its practical working out, this enhanced superiority of the line service over the tramp means that the shipper feels that he must have a line of steamers at his disposal.

Not only is the line service of the present possessed of a greater superiority over the tramp, but the threefold to sixfold increase of carrying power of the modern steam tramp over its romantic but slow old prototype has limited its use to only the largest firms. The result is that the modern exporter of anything but a few bulky products like grain, ore, coal, oil, and lumber is dependent upon the steamship line. This dependence will increase as the trade in manufactured articles increases, and with it the increase in ton value of goods, while at the same time the increase in the size of the tramp ship puts it more and more beyond the reach of the ordinary merchant.

It is easy to see that, since it is harder for the individual to compete with the line than it was in earlier days, it is also harder for a line to compete with other lines over long routes than over short routes, for the evident reason that fewer steamers are required to make twelve 3,000-mile voyages than twelve 10,000-mile voyages. If there be added to this the fact that the trade to distant continents is sure to be lighter than to near-by continents, it becomes plain that the first

and most natural stronghold of shipping trusts, rings, and rate-controlling agreements is in the trade with the antipodes, where, at best, but a few lines suffice to do the work. A few men can agree easier than many men.

It is necessary for ocean carriers who might compete to be in one of four relations to each other: (1) They may be practically independent because they all have more goods than they can carry at profitable rates; (2) they may be active competitors; (3) they may be working under some mutually beneficial agreement with regard to rates or traffic; (4) they may be acting practically as though they had formally agreed, although the condition is only one of mere truce which none cares to break. The last is commonest in the Atlantic traffic, where the barriers to agreement are greatest. The first condition—independence—is likely sooner or later to lead to the second—competition.

There is a peculiar ferocity attending a rate war among ocean line carriers, especially where the number of carriers is small and personal feeling can rise. It is primarily not competition to win trade, but to ruin the rival, to drive him off or bring him to terms. The competition literally hits the rival, whereas it often takes the form in other enterprises of being particularly attractive to customer or client. Lines rendering similar service are each acquainted with every move of the competitors, but each hesitates to make the move that starts a rate war, which can

only make losses for all carriers and which can end only when one party surrenders or all agree to abide by mutual restrictions that will preserve peace. The element of warfare existing in rate competitions is evidenced by the fact that the competing companies often carry freight at heavy loss, when a general condition of world-prosperity exists among carriers. Competition causes temporary disregard of all relation between the cost of a ship and income from her. In November, 1902, it was stated that the 10s. rate then prevailing from New York to South Africa involved a loss of \$10,000 to \$15,000 per steamer.

The carriers evidently desire agreements if they can be had, and the shippers do not desire rate wars as much as the lay observer might at first think. During an ocean rate war the rates are chaos, whereas trade thrives on regularity and certainty. The merchant in Cape Town, Buenos Ayres, or Shanghai does not relish having in stock a large stock of goods secured at a normal rate and suddenly find his rival getting the same goods in at a much lower cut rate. The constant fluctuations of a rate war often cause neighboring merchants to receive the same kind of goods by the same ship at different rates. One of them blames somebody, usually the export commission merchant, and he in turn blames his freight broker. It is no unusual practice for an importer to divide an order among several export commission men. If the goods come on the same vessel at different rates as they very likely may,

he is dissatisfied. The irregularity and wildly fluctuating rates would make it difficult for the importer to calculate a "laying down" cost of goods without expensive telegraphing. An editorial in a shipping journal, defending European shipping agreements to control rates to the Orient, declares that "competition now based on careful lines would" (under conditions of non-agreement) "resolve itself into as hazardous a speculation as a chance in a lottery."¹

Another thing unfavorable to the shipper is the common irregularity of sailing schedules in a rate war. The ships are managed, not to please the shipper, but to injure the rival, and with that object the sailing days are often made nearly to coincide. This does not give opportunity for an even flow of freight. The shippers prefer an even schedule, a rate as constant as possible, and the same for all shippers. These conditions are difficult to secure where lines do not agree.

The rate war sometimes disturbs distant trades, as when a quarrel among London owners in the United Kingdom-Australian trade is carried to New York-Australian trade where these same owners run steamers—an episode that occurred in 1905.

The combined result of all these influences is that, with the partial exception of the north Atlantic freight, there is in ocean line trades, both great and small, a normal condition of agreement among line carriers. This is disturbed by

¹ *Fairplay*, July 31, 1902, p. 162.

the frequent competitions that precede and end the agreements. The agreements are evidenced by the much greater constancy of line rates than of charter rates. These agreements are often reported in various journals, in consular reports, and in annual reports in the companies themselves. The annual report of the United Companies of Copenhagen (*Forenede Dampskibsselskab*) for 1904 stated that "the continental lines in their war against the Cunard Line unfortunately chose territory of the Danish Company and cost it a round million. Peace was concluded in December, and the company made a friendly working agreement with the competing companies, so that the future in this territory may be looked upon with full confidence."

The 1903 report of the Kosmos Line, plying between Hamburg and the Pacific coast of both Americas, after stating that a combination of sailing-ship owners had helped the line by stiffening and steadying rates on Chilean nitrate, discussed in an annex to the report the announcement of a Hamburg firm's intention to run monthly sailings of English vessels from Antwerp to western South America. The Kosmos directors did not fear from this any successful encroachment upon their business. This would be prevented by the convention concluded a few years previously with the Hamburg-American Company and by the extensive system of rebates that had been established. Mr. Ellerman, one of the men who sold out to the International Mercantile

Marine Company and afterward went into other shipping enterprises, told the stockholders of the Ellerman lines in annual meeting that six lines had recently been bought by the new company, and that in most cases there were working agreements with the other lines engaged in those trades. Sir Thomas Sutherland, chairman of the Peninsular & Oriental Company, told the stockholders in a recent annual meeting that his company was a party to conferences or working agreements with various lines rendering the same services, and that such had long been the common custom of shipping lines in nearly all trades.

The same forces that have produced these agreements have also driven to consolidation throughout the world, and made the carrying corporations grow, line upon line, service upon service. It has not been limited to the north Atlantic. Practically all of the German lines going to South America are consolidated or closely allied; so are also the German lines to east Asia. The North German Lloyd has recently bought out a Scotch and a German line that competed in the East Indies adjacent to Singapore. The two leading British South African lines have consolidated; a host of small Danish lines have formed the United Companies of Copenhagen, and the several long-struggling coasting lines of Finland have done the same thing. With the development of the telegraph, the simplification of direction and the reduction of number of owners, agreements become easier.

CHAPTER III.

AGREEMENTS AMONG OCEAN CARRIERS TO CONTROL RATES.

As might be expected, the freedom of the sea conduces to variation in the forms of agreement among sea carriers. At least four kinds of agreements are clearly discernible: (1) division of territory; (2) freight pooling; (3) pooling of profits; (4) "conference" or agreement to maintain rates.

1. Division of territory, although not the most common, is probably the simplest form of agreement, as it is the easiest to operate. Each party is, within limits, free to do as it chooses within its own territory. The agreement between the German companies and the Morgan syndicate makes a precise division of territory, by limiting future new services and setting the number of sailings that might be made on some existing services. In the North Sea traffic, Wilson's of Hull, the great rivals of the United Danish lines, agree with their rivals as to which ports each shall serve, and when they disagree the threat of either party to compete at all points is a strong argument for peace, as it was also in the recent (December, 1905) quarrel—or ostensible quarrel—

between the Hamburg-American and North German Lloyd companies. There are many divisions of territory that are tacit rather than formal. A line performing a certain service desires to add to or extend its service, but fears to do so knowing that the move will be regarded as a practical declaration of war and treated accordingly. This is probably the commonest of all causes of rate wars. A new carrier enters a rich field for a share of the trade and a contest ensues.

One of the commonest ways of ending a rate war is for the contestants to divide up the territory. The following is an example: During 1902 and 1903 the trade from New York to Hayti and Cuba was competed for by the Hamburg-American Line and the Cameron Line. This was settled and competition ended by the Cameron Line withdrawing their ships from Hayti, but continuing their Mexico and Cuba services. The owners of the Cameron Line further acted as agents for the Hamburg company in Hayti, but the Hamburg company's ships did the carrying.

2. Freight pooling achieves a similar result by (a) the common method of alternate sailings or by (b) the more unusual method of actual division of the traffic on a basis of percentage or kinds of traffic.

(a) Alternate sailings is one of the most, if not the most, widespread of all forms of line agreements. It is simple in its development and really was the origin of line traffic on many routes. Two or three merchants who were in the habit of send-

ing an occasional sailing vessel for themselves and others, naturally chose different times for the despatch of their ships, because there was then more freight offering. They almost inevitably worked out something of a schedule.¹ The same advantage holds true when two or more lines are running on the same route. As the advantages of this manifestly increase with the length of the route it is natural that it should be prevalent in the trade to South America, Africa, and the Orient.

(b) To the Argentine Republic, one French and two English lines give a uniform rate with alternate sailings and exchange of passenger tickets. To the west coast of South America the Hamburg-American and the Hamburg-South American companies alternate the schedule and increase their ships together. But these lines have even a closer pooling alliance. In the Oriental trade two French lines operate together, taking turns, and the two great German companies have tried about all forms of combinations. This service has been double, consisting of the Imperial Mail Line and a cargo line, the two companies joining in furnishing the vessels for these. This was followed by a period during which the Hamburg company managed the freight line and the Bremen company the mail line, each contributing ships

¹ The Hamburg-American and North German Lloyd companies were formed by such groups of merchants who desired a better service than their occasional independent ships gave, and, uniting, formed the now famous companies.

to both. This was satisfactory to neither party, and by a Hamburg conference in November, 1903, it was agreed that the Bremen company should furnish as well as manage the mail line, and the Hamburg company the cargo line. The companies then exchanged vessels and agreed not to antagonize each other in this trade. A half-dozen companies along the Dalmatian coast recently made a similar arrangement by which passenger and express business was taken by one line and freight by the others. The contract between the German lines and the Morgan syndicate made provision for the sharing by the two interests of new trade, or of extension when the enlargement amounted to doubling the number of sailings.

3. Pooling of profits seems to be quite common if one may infer from the known number of these ordinarily secret arrangements. The two great German companies appear to have a money pool, and it is announced from time to time in the press that they have pools with some of the smaller German companies. There is a pool of passenger earnings between the two German companies, the Holland-America and the Red Star Line, which belongs to the International Merchant Marine Company, and runs to Antwerp. The German East-Africa Company and the Austrian Lloyd got into competition because the Austrian line entered the east Africa trade, but after various negotiations¹ they announced a reported

¹ *Fairplay*. January 28, 1904, p. 145.

agreement by which "receipts from the passenger branches of the two services shall be divided at fixed intervals between the two companies, and that a mutual understanding shall also be arranged as regards the goods traffic."

The pooling of profits in ocean carrying is comparatively simple if office expenses are left out, as is usually the case. The ships are often chartered, the owner furnishing the crew, so that the expense account, as well as income, can be calculated to a nicety. Even where ships are not chartered, it is common to have them surveyed when they enter pool service, and the owner credited with the same amount of money that he would have received if he had chartered the vessel to outside parties at current rates.

There is a profit pool among the carriers from the United Kingdom to Australia. Within the past decade there have been profit pools in the line trade from New York to Australia and from New York to Brazil, and there was every outward sign that there was also one from New York to South Africa. Its existence was finally revealed in May, 1905, by a suit in the court of King's Bench, London.¹ Three British firms in the United Kingdom-South African trade also had vessels in New York service. They were entitled to twenty-one per cent. in the pool; the German Hansa line had sixteen per cent., and was sued because of the failure to maintain the agreement which was entered into October 23, 1901. During

¹ See New York *Journal of Commerce*, June 7, 1905.

most of this period there was a rate war in progress, and the difficulty of operating a pool under these circumstances is shown by the fact that in 1902 there were eighty-seven meetings and in 1903, sixty-one.

Pools of both sorts are apt to be short-lived, as were most of those referred to above, because of their tendency to become non-progressive arrangements. They heal the difficulty of the hour, but they must be well arranged, indeed, if they can provide for the satisfactory division of increased trade among the participants. This is the rock upon which they all alike go to pieces. It matters little whether they be divisions of traffic or divisions of money. One line feels that its position, expenditures, or activity merit a large share of the increase in the trade. The line that has done less wants, of course, an equal share. An example will illustrate: In February, 1893, the British-India, Peninsular & Oriental, and Hansa steamship companies came to a clear-cut agreement about the trade between Middlesboro', London, Hamburg, and Antwerp with India. In September, 1898, it was modified apparently in favor of the stronger parties, so that if Antwerp freight exceeded the capacity of the Hansa steamers, each of the other lines could have six sailings a year from Antwerp, the amount of freight in each of these additional sailings being prescribed and limited. This lasted until January, 1905, when the P. & O. Company, again dissatisfied, threw the agreement to the winds, announced more

frequent sailings from Antwerp, and a long rate war between the two British companies and the German company followed. Announcement of its end in the spring of 1907 did not give the terms of the agreement.

4. *Shipping Conferences.* These are usually agreements to maintain rates upon a certain route. Once the carriers have agreed, they usually arrange a schedule of sailings, rendering the best possible service, and keep off competitors by a system of deferred rebates. This is usually ten per cent. of the freight. It is calculated at the end of a long period, usually six months, and paid six months or a year later, *provided* the shipper has remained "loyal" to the members of the conference. Shipping by a rival line is, of course, "disloyalty," so that the conference carriers, by means of these deferred rebates, practically keep all regular shippers under bonds to let all rivals severely alone. Thus is the shipper bound. The starting of rival shipping lines is deterred by the certainty of fierce competition, and by the restraining tendency which the rebates will have on the people who would otherwise ship by the new line.

Despite this inner stay and outer prop, the way of the shipping conference is far from smooth. The prosperity that attends their success attracts the hungry outside ship-owner, who sets up competition, creates chaos and general loss in the hope of being admitted to the conference.

Owing to the oft and widely repeated fact

that the United States has had few and poor shipping connections other than transatlantic, the best place to see the shipping conference in full operation is in European trade, where the steamship lines are older and well established. The best single example is the South African Shipping Conference, which has successfully regulated the trade of a region that stood for some years in the glare of the world's attention. It is also an unprosperous region, where discontent is rife and where there is diligent search for the causes of this lack of prosperity which leads to discontent. The fact that the conference has had long success and consequent freedom from rivals has produced a feeling of independence and made it less anxious to please the shipper in matters of detail. All these influences have combined to throw much light on the South African Shipping Conference.

A New York freight-broker, well acquainted with European conditions, recently declared: "The steamship people in England ride the shippers; they *ride* them; they say 'You can have so much space in such and such a ship.'" The British shippers seem to be of the same opinion. After the close of the Boer War the press was full of complaining letters about the South African Conference. Such grave bodies as the Liverpool and Leeds Chambers of Commerce took the matter up and condemned it vigorously; the colonial premiers entered into correspondence with the head of the conference; and South

African commerical bodies were quite as active as those of England.

The Leeds Chamber of Commerce showed that when a rival line had arisen and the rebates had failed to hold the shipper, the conference had quoted double (prohibitive) rates when the shipper persisted in patronizing the new company for that part of the freight which the new carrier could place. The British public was also enraged because the rates to Africa were from 24s. to 80s. per ton, and the same firms had steamers in the New York-South African service and were giving rates from New York at 10s. to 20s.¹

American trade was naturally booming at the expense of the English. To this criticism the carriers replied that the New York rate was a heavy loss owing to competition, and that the rates from all continental points were the same as from British ports, a point that had been carefully stipulated in all arrangements with German and other lines.

From South Africa also came the charge of excessive rates, but the carriers declared the rates were reasonable, and that the African importers were suffering from the exactions of the colonial railroads. In this connection a paper before the Institution of Civil Engineers shows that on the basis of 1.54d. per ton per geographical mile for mineral trains in England, the total

¹ This type of grievance still remains and is embodied in a strong resolution of the Associated Chambers of Commerce of Great Britain which met in London, March 7, 8, 1906.

sea-borne rate was about one thirty-fifth of that figure. At the time of the African complaint against the shipping "ring," the rate on iron from the United Kingdom to Kimberley was as follows:

	Via Cape Town		Via Port Elizabeth		Via Durban	
	Rail.	Ocean.	Rail.	Ocean.	Rail.	Ocean.
Distance....	647	6,181	485	6,609	483	Circ. 7,000
Rate per ton	218/5	22/6	166/2	22/6	110/-	25/-

Various persons and chambers of commerce were appealing to the British Government to give them relief of some sort and one proposal was to give the mail and government contracts to an independent line that should be formed. An editorial in *Lloyd's Gazette* in August, 1904, stated that, while monopoly had made the conference carriers a little autocratic in their manners, any government scheme to start another line "would just make it strong enough to join the conference." Occasionally, Sir Donald Currie, head of the largest British interests in the conference, would reply to the numerous attacks. One such long letter¹ made the challenging statement that "the South African trade is quite open." But owing to the rebate control and boycott rates it was practically open only to a line or combination that could offer as good a service, and that, as experience proved, was a heroic task. It is common for steamers to South Africa to skirt the coast, stopping at three or more ports. When competition did spring

¹ *Syren and Shipping*, June 24, 1904.

up, the conference lines eclipsed it by despatching a vessel directly to each of the three main ports, and it is currently reported that one of the lines in the conference got in only after losing a million dollars in a rate war which finally brought the conference to terms. So the statement that the trade "is quite open" may have needed a little interpretation.

In a letter to Mr. Chamberlain, Sir Donald Currie said (see *New York Journal of Commerce*, June 18, 1903): "This so-called rebate system prevails in every ocean steam trade, and while providing the necessary support which steamers, to be regularly employed, regularly require, it secures under suitable arrangements with the merchants regularity of rates, as well as the supply of sufficient steam tonnage."¹ *Fairplay* quoted Mr. Birchenough (who had been sent to South Africa by the government to investigate the matter) as saying: "The rebate system prevents the cutting of rates, and it is to that extent as much a protection to the shippers as to the 'ring'"; and the journal then stated editorially that, "as a simple matter of fact, the present very efficient service to the Cape could not possibly be worked otherwise than by a conference agreement."

The discussion of this rebate problem steadily continued, rose almost to the degree of ferment, and would not down. Finally, after special reports had been made to the British Government upon it, a royal commission was appointed, in

¹ *Fairplay*, September 22, 1904, p. 444.

November, 1906, to inquire "into the operations of shipping rings or conferences generally, and more especially into the system of deferred rebates, and report whether such operations have ceased or are likely to cause injury to British or Colonial trade, and if so, what remedial action, if any, should be taken by legislation or otherwise."

The rather full accounts of hearings which were reported from time to time in *Lloyd's Gazette* and other maritime journals furnished much detailed information concerning the actual situation.

The disadvantages of the rebate system have been clearly pointed out. The secretary of the Birmingham Chamber of Commerce testified that merchants have been so penalized that they were afraid to testify. The penalties have been doubled rates or no service. A representative of the London Chamber of Commerce testified that the heavier shippers got special secret rebates. But the most galling piece of testimony seems to have been the fact that the shipping ring lines charged higher rates from British ports than they did upon the same ships for continental or American goods going out to the British colonies and foreign lands. For example, the China Conference was inveighed against because the American rate was twenty-five shillings and the London rate forty-five shillings to China; and an offer of a twenty-shilling rate from London, the British shipper dare not take, and kept on paying his forty-five shillings, because he was tied with a heavy rebate shackle. Complaint was made that the British

glassware paid thirty-seven shillings and a half to New Zealand, while the same steamer took continental glassware from Antwerp and Hamburg on a through rate at twenty-two shillings and a half. The defence of this on the part of the shipping company was that only by this means could they meet the competition of continental steamers.

In answer to the direct question by the commissioners, "Do you recommend the abolition of rebates by statute?" there was a surprising temperance of answer on the part of the aggrieved merchants; almost none of them favored such action. In the first place, it was pointed out that the attempted prohibition by the United States Government, while it had caused a temporary cessation of rebates, was really ineffective; because the rebate could be worked by a foreign corporation through its foreign offices.

The suggestion of the legal prohibition of rebates brought out a rather surprising statement of their advantages. It was shown that they permitted regularity and uniformity of rates, which enabled the merchant to make quotations for long times in the future; and, lastly, the shipping companies usually bound themselves to stop competing with the merchants by so-called "filling lines." This common practice has long been resorted to by shipping lines. When freight was dull, they would fill their ships with goods on their own account, to be sold in competition with merchants who were

their patrons. Escape from this the merchants deemed a great gain.

A representative of the Ceylon Association of London testified that he thought the one-year deferred rebate was too long a time for the money to be held by the carrier, and was therefore not liked by the shippers; but they didn't wish anything to interfere with the splendid, almost daily, service which the Ceylon shippers enjoyed by the 120 first-class steamers which were returning from that island to European markets. Therefore, on the whole, they were against any legislation on rebates, for fear that the shipping lines might make something that bore more heavily upon them, since "a reasonable and regular rate seems to us more beneficial to the shipper and trader than one subject to violent fluctuations."

The consensus of opinion of the witnesses was similar to that of the Ceylon tea-shippers; but great insistence was placed on the fact that something should be done to prevent lines carrying foreign goods more cheaply than British goods to the detriment of British trade. In this respect the conference of west Africa was held up as a shining example. The two British lines controlled by Elder, Dempster & Company had an agreement with the one rival German line, which they dominated, and as its result they had built up a splendid service, and to prevent the founding of a line directly with America, a rate was given to America, via Liverpool, which was identical with the rate to Liverpool only.

The China Conference is one of long standing, and, like numerous others from Europe outward, it has succeeded in keeping less before the public. One of the largest of these combinations is the reported agreement between two groups of west-coast South American carriers, the Panama group, comprising eight companies, and the Magellan group of four companies. In the Panama group were companies representing America, England, Germany, France, and Italy.

The founding of lines of steamers from New York to other than European and West Indian ports has had its largest and almost its entire development since 1890, and, while these lines have not been long established, they have compassed practically all of the experiences in the catalogue of agreements among carriers. To South America, Africa, Australia, and the East there were sailing-vessel lines that had grown up gradually from the operations of exporting merchants. This commerce has grown great enough to tempt the old established firms of British ship-owners to establish employment for some of their vessels by putting them into steam services from New York to the various coasts above mentioned. This was a direct blow at the trade of the American firms that had handled the trade from its inception, and strong rivalries have ensued. This has been further complicated by the coming of the German steamers upon the scene. Peculiar incidents have occurred in these contests. Firms agreeing in European conferences

have competed here; at least one New York firm has been in both the east South American trade and the South African trade, but in one it fiercely competed with firms with which it had agreements in the other trade. The New York carrying combinations are well typified in all important respects by the happenings in the Australian trade.

The first of line service was in 1853, when two firms began taking turns in sending out their sailing vessels. In 1878 a Boston firm began, and in 1884 added a New York service, taking turns with the other two companies, and each got what rates it could at the agreed-upon time of sailing. In 1889 a fourth company essayed to enter this service and it was admitted, after a year of rate-cutting, during which rates fell from twenty-seven and a half cents per cubic foot to seven cents.

The four companies now agreed and conducted their business without serious disturbances until 1896 and 1897, when some outside merchants chartered, loaded, and despatched some ships to an Australian firm. This promised easily to become the origin of another line. Shortly thereafter the four carriers made rebate contracts, promising a ten per cent. rebate if shipments were not sent by any outside line. The agreement was made with many firms, some for five years and others for shorter periods, down to one year and less. The shorter periods were apparently accepted because of the probability of opposition.

At this time the charge was freely made that the four firms, by combining the functions of commission merchants and carriers, used their carrying functions to benefit their business as merchants to the detriment of other merchants. This very natural desire could be effected, as was then charged, by quoting rival commission houses higher rates, and by so-called "filling-orders"—filling up a ship, when cargo was scarce, with "bulk lines" to be sold in Australia in competition with their patrons who had paid full rates of freight.

In the spring of 1898 two London shipping firms, desiring return cargoes for ships carrying Australasian frozen meat to the United Kingdom, sent their steamers to New York to load outward. The four New York firms, which had been sending sailing vessels only, united in organizing the United States and Australasian Steamship Company, and placed at its head a man from one of their offices. This was done the very day that the advertisement of the British steamship service appeared, and the Americans succeeded in despatching the first steamer. The war was carried into the enemy's country by sending steamers to South Africa where the competing English firms had important services. This was a new venture for the Australasian shippers and was purely an incident of the lively war that raged from May until December, 1898. Rates were put down to 10s. a ton, about the cost of stevedoring and dunnage wood, and in December there

was an agreement between the New York firms and the two London firms; but a third London line which had entered during the competition did not enter as a part of the agreement that formed the so-called Associated Line.

Before the beginning of the competition each of the four firms had taken its turn on the berth and had made what profits it could from its ship. The Associated Line worked on a profit pool said to have been divided equally between the New York and London interests. It, of course, had the rebate arrangement and the carriers promised to do away with the obnoxious "filling lines." This Anglo-American agreement seems never to have run smoothly. Even the public agreement frequently mentioned the fact. Old-established American firms, accustomed to making their decisions on the spot, were dealing with the agents of British ship-owners who are notorious for deciding in London everything for their agents in New York, whether they know the conditions in New York or not. That they do not know the situation is the consensus of American-New York opinion. In addition to internal troubles, the Associated Line had the strong competition of the one outside firm which was not well controlled by the rebates. Stronger measures were tried. In May, 1899, an Associated Line circular stated that if, after the first day of July, any commission house should consent to fill a buying order for any Australian or New Zealand merchant who insisted upon shipping by any line but the Associated

Line, that commission house would not only lose its ten per cent. deferred rebate for that client, but would in addition have to pay an additional rate of 5s. per ton upon all freight shipped to Australia, and 7s. 6d. per ton extra to New Zealand. This embraced all business done by the New York *commission firm* for clients "loyal" and "disloyal" to the Associated Line. The rival line continued to prosper, and in April, 1900, the penalties were increased to 12s. 6d. per ton, "on condition that they buy their goods from a loyal supplier, the consignee's name being subject to approval of one of the members of the Associated Line."

The attempts at coercion failed, and within a month the Associated Line had ceased to exist. It was resolved into its original elements, and rebates and penalties were declared off. During the exigencies of the fight it appears by the protests of merchants in both New York and Australia, that the rebates were withheld when due, and certainly were not paid for some months thereafter.¹ This was merely one more effort to hold trade away from the rival. The end of the combination was brought about quite as much by internal trouble as by competition, as is evidenced by the fact that the breakup of the combination caused no immediate break in rates.

Since the end of the pool in May, 1900, there has been a continuation of the ups and downs in the trade until the mere mention of the Australian trade makes a New York shipping man refer to

¹ New York *Journal of Commerce*, April 21, 1901.

primeval chaos. The steamship company owned by the four united New York companies is sending out both steamships and sailing vessels, and the three British firms are still in the business. In September, 1901, rate-cutting apparently took the form of seeing who had the most money to lose. Weight cargo was carried for 5s. to 7s. 6d. per ton, and measurement cargo for 10s. The American company seems to have outgeneralled its opponent in this contest of loss. The shipping journals show that they advertised the same steamer from December 2d until March 27th, when she finally sailed. In the interval she was making short voyages in near-by waters. The earlier cargoes that she should have taken to Australia got sent on the rivals' ship at the rivals' heavy loss. In May, 1902, there appears to have been an oral agreement that lasted till October, 1904, when one of the British lines started in to get a better share of the freight. This war lasted until August, 1905, after which time the carriers lived along for some months on day-to-day rate understandings, and efforts to pool the traffic or proceeds came to naught because the different parties could not see alike with regard to respective proportions that each should have. In February, 1906, one of the London companies suddenly made a great increase in the tonnage of its service. To secure freight for it, concessions in rates were made to some shippers on some classes of goods, but this had not resulted in a general disturbance of rates on April 8th. This situation, like many



Obidense—Booth Line to North Brazil

another in the commercial world, is materially affected by bitter personal animosities existing between some of the principals, and rendering them oblivious to the ordinary economic impulses.

This detailed account of the recent developments in the New York-Australian trade, with its freight and money pools, its competitions, rebates, and virtual boycotts, differs but little from the history of the trade to South Africa or east South America. In all of them the old American exporting firms have had to meet the competition of European ship-owners who have competed by setting up new steamship lines. In the struggles that have followed, the pool, the rebate, and the boycott have been freely used. The boycott has not frankly borne that name, but the same practical result has been attained by indirect means. One method is the prohibitive rate described in the account of the Australian trade. A common device of the agent for the foreign-owned ship is the "inability" to name a rate. "I'll have to cable to headquarters," replies the agent. Upon application the next day or the next, the cable "hasn't come yet." Another method of achieving this result is for the ship's agent to tell the applicant that he has no space, although the next applicant, if friendly, may contract for five hundred tons. In a recent conversation a New York freight-broker said that he was boycotted by the carriers to four different parts of the world. It should be noted that it is the broker who is usually boycotted,

not the actual consignor of the freight. He can get another broker and have his bargain made.

There is one broad difference between the recent American and British shipping conferences. Those in Europe are made by lines owning ships that they use. The American conferences have been upon the basis of hired ships or European ships being managed at long range by non-resident owners. The members of European conferences have therefore had more at stake, and in the freight depression prevailing since the Boer War most of the American conferences have gone to pieces from time to time, and most of the European conferences have survived.

One of the most successful of the American conferences is that of the four lines from New York to the Orient. Since the last peace in 1904 it seems to be getting stronger and displaying its strength day by day, until in July, 1907, it was declared by one shipper to exceed even the Hamburg-American in its independence. This appears to be strong language, as a later chapter will show.

The rebate system is comparatively new in the New York trades and seems to have had its chief growth since the coming of the British steamers to compete with the American sailing vessel merchant-carrier firms. The recent strenuous competition between carriers from New York to South Africa led to the withholding of rebates because of "disloyalty." The dissatisfaction of some of the penalized firms over the

definitions of loyalty led to a suit being brought against the carriers in New York in 1904, and it is currently stated that a letter from the United States Attorney General's office so alarmed the foreign owners that they feared to risk trial under the Sherman law, and stopped all rebates for a time. The foreign shipping representatives are reported to have said that they would carry our freight for us, but they did not care to go to prison for us. There was shortly afterward a change in the head of the United States Department of Justice, and the rebates began again in some quarters. The suit did not come to trial.

CHAPTER IV.

TRANSATLANTIC FREIGHT RATES AND THEIR CONTROL.—I. THE LINES BETWEEN AMERICA AND GREAT BRITAIN.

THERE is probably less organization and less general rate agreement among the carriers in the transatlantic trade than in any other in the world.

All other important ocean trades differ from the north Atlantic in at least three respects: (1) none is so large and none is over so short a route; (2) none has such geographical unity on one end, making competition easy, nor so many nationalities on the other end, making agreement difficult; (3) none is so dependent on raw materials.

1. The first cause is a dual one producing one effect—many carriers. The shortness of the route permits a comparatively few vessels to render line service, while the magnitude of the Atlantic trade requires so many lines that they have never been able effectually to get together. The trade from America or from Europe to the commercial districts of other continents is smaller in volume and over routes so long that the formation of a

line is relatively more difficult, and therefore the task of starting new competition is greater. Competition in line traffic, it should be noted, requires another line able to offer the same service. The transatlantic voyage is but one-half to one-fourth the length of that from Europe or America to South America, South Africa, India, Australia, or the Orient.

The stupendous size of the trade from America to Europe puts it almost or quite beyond the limits of what the human mind can grasp, control, and weld into an agreeing whole. In 1902, when the International Mercantile Marine Company was forming, it was stated that this trade was giving employment to about three million tons of shipping. The Morgan interests succeeded at great financial sacrifice in getting possession of but one-third of this, and with it they met losses for several years that threatened to engulf them. The remaining two million or more tons of shipping working here are possessed by many owners having little common interest.

2. The geographical and political conditions of America tend to weld the commerce of that continent with any particular part of Europe into one great unit by enabling it to reach the sea anywhere.

For this trade the United States and Canada are one. American goods go down the St. Lawrence, and Canadian goods go out by United States Middle Atlantic ports. The peculiar geographic form and transportation conditions of the centre of North America make easy the access from

the central region to the sea at any point between Montreal and New Orleans and Galveston. If Montreal rates do not suit, the shipper in the central basin will turn to Boston, or New York, or Philadelphia, or Baltimore, or Newport News, or New Orleans. The transatlantic traffic is, at its American end, one traffic, despite the variety of the geographic factors involved in the trade of all America with all Europe, and a rate agreement to be successful must cover the whole. Possibilities of effective combinations are very different in a trade like that from the same coast to Australia, which requires five or six steamers per month all from one port instead of fifteen or twenty per day from a long row of rival ports.

There is in Europe no such commercial unity. European land forms, politics, and transportation conditions unite to produce commercial separateness. A half-dozen different nations, each commercially independent and commercially hostile, give to the trade of Austria, Italy, France, Great Britain, and Germany an isolation that is entirely unknown in America and make much easier the agreement of European carriers to the different corners of the world, because each group of carriers has a territory of origin in which rivals cannot compete without coming to the same ports.

The lack of any geographic or commercial unity in Europe corresponding to that in America causes the carrying trade with America to fall

at its eastern end into three main divisions: (1) the United Kingdom; (2) the continent; (3) the Mediterranean. The trade of each of these divisions with America makes a commonly used unit in rate problems and plans, although they sometimes apply to the smaller unit of the carriers to a certain European port.

3. The longer European and American trades stand apart from the transatlantic, having less raw materials and more manufactures in their freight. The great quantities of manufactures going out from Europe require a fast, frequent, and reliable service over long routes. Lines agreeing and co-operating can easily give such service, which, moreover, a new rival finds it hard to give. Competition from Europe to the more distant continents cannot, therefore, be so easily active a force as it is in the European trade with eastern North America.

The greatest factor of confusion in transatlantic rates is grain, the great staple commodity in the transatlantic cargo. To begin with, this is essentially charter vessel cargo and the liner that gets it must bid down to do it; hence the rate is constantly lower on line than on charter vessels. The line vessels make this sacrifice of space because grain serves as good ballast. A certain amount of it brings the ship down to her intended draught and causes her to sail better. In connection with higher class freight the difference is that between profit and loss. Grain, therefore, brings the line vessel in direct compe-

tition with the tramp. If grain is abundant, the ships can usually fill up at good rates; but if it is scarce, many of the ships must have it at any price. There are cases on record of grain being carried for nothing. With such an imperative demand rate agreements are difficult to enforce. The frequent fluctuations in the grain supply are familiar to all. The shipping on the Atlantic must be able to handle, when it comes, the large surplus above America's growing requirements. This surplus varies. In 1904 the grain and flour exports from the United States to Europe amounted to about four and a half million tons. The preceding year the same commodities furnished seven and one-half million tons of freight. Since the grain trade is irregular in quantity, it renders the transatlantic trade hard to organize through rate agreements. The fact that the unit of shipment is large, usually tens of thousands of bushels, gives the smallest fraction of rate difference a deciding influence.

In a trade as great as that across the Atlantic there are possibilities of numerous small agreements which have limited scope but can yet do something to steady conditions in given grades of exports and benefit shipper and carrier alike. It is possible for two lines from the same port to have some kind of an understanding, and it is possible for the carriers to any one European port to get together, as do the London and Liverpool carriers. This is made easy and almost necessary by the fact that nearly all the freighting arrange-

ments and final bargains for the New York lines are made on the floor of the Produce Exchange by freight-brokers representing the shippers, and the agents or representatives of the steamship lines. Not only are New York freight bargains, and therefore rates, made there, but nearly every steamship line sailing from America, whether it be from Montreal or Galveston, is represented. Most of the important American railroads also have representatives there trying to get seaboard work for their lines. It is therefore physically easy for the representatives of any group of traders to get together, and temporary agreements without number have been made and constantly are made.

The carriers are always seeking agreement rather than competition. Where two principals of competing services send their representatives on "change" in the daily search for freight, it is with instructions to get the best rates that can be obtained, to work together to that common end and not rashly to disturb rates for the sake of a small lot of visible freight, as this causes dissatisfaction among shippers in addition to reducing income. Sane business methods demand as much.

The freight market is governed in the main by supply and demand, but the minor adjustments are made by continuous conference. One agent on the floor of the exchange says to the representative of a rival line: "We are holding for 8s. on flour for next week's sailing. What are you

booking for?" "Seven shillings six pence." "Well, you are making a mistake, you had better hold for 8s." "All right, we will, if we can." A day later the second party may announce to the first that he is not getting any flour at 8s. and may declare his intention to quote a 7s. 6d. rate. The first may or may not adopt the same rate, but for one day at least there has been an attempt at an understanding. Not a stroke of writing is involved, no contract, no penalties, no time limit, and there is perfect freedom of secession. The traders to any city or country may get together daily or weekly and make agreements to last till the next meeting. Sometimes the agreements are more formal and may last for a considerable period, but their existence at best is precarious. For example, about 1880 there was a Liverpool agreement (minimum) on grain along the Atlantic seaboard. Port by port it was broken at all the "out ports" but still stood at New York until at last a firm of brokers bought a steamer badly in need of repairs which were to be made in England. She could get no freight at the agreed minimum and her owners cut the rate a farthing, took the cargo, and ended the agreement which had until that time been observed.

It is more than accidental that the name of an ocean freight agreement is a "conference," as the "South African Shipping Conference" or the "Transatlantic Shipping Conference." The name is indicative of the method of formation and often of the actual result. There has been a

"Transatlantic Shipping Conference" since 1868. As the date indicates, it was the outgrowth of the disturbances of the American Civil War and of the final triumph of the steam lines over the sailing lines in this trade. This conference has attempted little in the direction of the formation and regulation of rates. It has busied itself with numerous other matters of importance to all Atlantic carriers. For example, it has worked for changes in the printed form of bills of lading for the benefit of the carrier; it has secured a practically uniform bill of lading; it negotiated with the National Lumbermen's Association for certain improvements in the method of receiving and inspecting lumber for export; it acts in behalf of all in regard to legislation on quarantines, channels, etc. In 1902 this conference, with operating headquarters in New York, was made the mechanism for carrying out a minimum freight agreement to the United Kingdom which was made in Liverpool and planned for the relief of all interests. The transatlantic carriers were suffering from a rate depression which in twelve months had cut their earnings from exceptional prosperity to hopeless loss. At one time this agreement included forty-six lines and services.

The rate agreement involves of necessity a rate classification—a task beset with difficulties. One commodity may be incidental to one line and fundamental to another. For good loading and best income a ship must have a mixture of heavy and light goods. A ship full of wooden

ware or furniture would ride high in the water with unused buoyancy. She would even be in grave danger of overturning. A ship-load of steel rails would leave three-fourths of the hold space absolutely empty. By combining these two classes of freight a ship can carry at one time three-fourths of a full cargo of rails and three-fourths of a full cargo of light goods, and at the same time be in the best possible shape for safe navigation. This advantage of mixed cargo gives the loading agent a perennial but ever-changing problem. He is seeking some particular kind of freight to complete a ship's cargo; having already made enough contracts for light goods, he wants a thousand tons of heavy cargo to make the ship ride well. He must have it, and it may be that the contracts already made provide almost enough income for the voyage. He would willingly, therefore, cut the rate to get heavy cargo. But there stands the agreement, and the heavy goods can only be had at forbidden rates. The next month his desire may be to sacrifice on light goods. The attempt to lay down a classification for the numerous lines and services results every day in some firm having a strong desire to break the rate on some commodity, and in the course of time every shipper desires at some time to break almost every rate.

Ship-owners are not prone to make public the details of their little-known business, and it is fortunate for the writer's purpose that the Atlantic Shipping Conference got dragged into the

Interstate Commerce Commission hearings on differential rates to the various Atlantic ports. The detailed history of this agreement as narrated in testimony before the Commission¹ reads like a description of an attempt at making ropes of sand. The original agreement, made in Liverpool, January, 1902, was signed by nearly all lines plying between the Atlantic seaboard and the United Kingdom, and the testimony showed that, at the beginning at least, the same rates were observed by lines, not signers. The agreement showed its inherent weakness by providing that "Any of the signers may withdraw from same at the expiration of fourteen days after the receipt by others of his or their desire to do so, and the withdrawal of one shall *ipso facto* release the others from their obligations under this agreement unless they may otherwise determine."

The inherently competitive nature of their business drove the companies to this device of unanimous consent to any action, and unanimous consent, as may easily be seen, reduced the sphere of action to small proportions, but without it no agreement was possible. The life of the agreement was one rapid series of adjustments and readjustments, concessions and compromises, made necessary to heal the dissatisfaction of some line which had served notice of its intention to withdraw. Finally, after an existence of two

¹ Differential Freight Rate Case 746, N. Y., vol. i., May 18-20, 1904, pp. 303-502. See also N. Y., vol. ii., June 20 and 21, pp. 1002-1042.

years and four days, a break in rates brought about such a condition that the final meeting of the conference found that there was no proposition upon which they could unite, although several of the many attempts were negatived by the votes of but one or two lines. The agreement was thereby ended, but the carriers to London met again the same day and continued the agreement so far as the American trade to that port was concerned.

During the life of the general agreement the committee of management had frequent meetings in New York and some changes were effected by correspondence through the secretary's office. Rates were promulgated for trial during two or three weeks, and the life of the agreement was continued from meeting to meeting. These extensions never covered so much as one month, and one week was the more common period of their duration. The rates were fixed with differentials to make living conditions for all ports. This included the right to adjust out of the rate any marine insurance differences between the port in question and New York and Boston. From time to time difficulties arose and concessions in rates would be granted, permitting the carriers from a certain port or ports to cut the rate a certain amount to secure a prescribed maximum amount of named articles of freight in order to get ballast, after which the usual rates were resumed. The converse of this was also practised when lines from certain ports refused by agree-

ment to carry certain commodities for a period so that other ports might get their share. This refusal to carry was brought about by the mere quotation of a rate sufficiently high to drive the freight to the ports agreed upon. Witnesses stoutly maintained that there was no percentage division of traffic, and minutes placed in evidence showed that the following motion was lost at the last meeting of the conferees: "That a committee be appointed to arrive at some equitable way of dividing the results of the traffic, if not by a physical division, then by pooling the earnings."

Special agreements to change temporarily the conditions of shipment from certain American ports were duplicated by similar agreements concerning the carrying of goods to certain of the European ports. The agreement covered only named articles; the list was occasionally changed, or the rates on single commodities altered. At times the desire to compete would be gratified by withdrawing the agreement on some article or articles for a named period, and when the London agreement succeeded the general agreement, February 4, 1904, it postponed the enforcement of its rates on flour until May 1st. It must be borne in mind that these rates were minimum rates only. Higher rates were always hoped for, and in at least one case they were definitely recommended by the conferees. The changing nature of ocean rates and the method of their making is indicated by the telegram from the Allan Line at Montreal to the secretary of the conference,

stating that "We are accustomed to revise our rates weekly, on Fridays, in conference with the other lines (at Montreal). The rate on casks (flour) to Liverpool will be discussed to-morrow, and the result will be communicated to you by telegraph."

In summary, it may be said that the minimum freight agreement did control rates from the Atlantic seaboard to the United Kingdom for two years. The agreement practically covered only articles essentially requisite as ballast cargo. The owners aver that they intended by this so-called minimum agreement to lay down the principle that they would rather not carry than go below the rates they named. To show the economy of transatlantic service it is only necessary to state that the minimum on flour was 8.44 cents per 100 lbs., and on provisions (meats) \$2.50 per ton.

Even this feeble minimum freight agreement was rendered nugatory by the American railroad differentials between the interior and the seaboard. Montreal, Philadelphia, Baltimore, Newport News, and Norfolk have since the early eighties, as a result of railroad agreements, had a lower rate on heavy articles than New York, Boston, or Portland. The ocean freight agreement had this differential to deal with. In the beginning the full differential of three cents per hundred on flour was equalized by adjusting ocean rates, thus establishing a common through rate to Europe via all ports. Later the inland differential

was reduced gradually to one-half, but it was on this point that the 1902 agreement was wrecked. The end was due to the demand of a Boston line for full equalization in through rates by ocean adjustment. This was declined by a line from Baltimore, which refused to submit to sea differentials that absolutely wiped out the advantage of those by land.

As stated above, the disruption of the general agreement in February, 1904, was not the end of the practice of rate agreements. It was the end of the service of the Transatlantic Shipping Conference as the means for conducting a rate agreement. The general federation broke up into practically the component parts that had formed it, and these went on as before. The London traders met immediately and continued the agreement so far as it affected them, and their agreement is still in operation. The Glasgow traders and various other traders after the general break gathered themselves together as before and made and informally maintained their agreements. Forty-six services, embracing all the complications of the trade of a continent, were too many to be harmonized under one management, at least at the first attempt.¹

A complicating element in any such agreement as that described above is the ownership of steam-

¹ Space prohibits any detailed narration of the agreements and wars in the trade of the United States with the Mediterranean. It is one series of changing episodes similar to those that have been narrated in connection with other trades.

ship lines by railroads. The Canadian Pacific openly owns a transatlantic steamship company and other transatlantic lines are practically in the same condition. These lines are particularly hard to satisfy in any ocean rate agreement because the motives of their managers differ from those dominating the purely ocean carriers. The railroad steamship line (see Chapters IX and X) is merely a feeder to the vastly more valuable railroad. The combined management can easily afford to lose some money on the ships to get more freight for the railroad. Private car lines and their mileage rebates and other indirect cuts in through rates have also entered in as factors here. The result is that satisfactory agreements are made with extreme difficulty between steamship lines that are *bona fide* investments and those that are mere props to a modern American railroad system.

This adjunct line—an ocean carrier with different and additional motives for cutting rates—has moreover easy means of hiding its policy. For practical purposes the through rate from the inland point to Europe may be easily cut. The other steamship lines may remonstrate, and be informed that the ocean rate is being maintained. This may be literally true; but since the railroad and the steamship line are financially one, a cut in the railroad rate has had the same effect upon competitors as a reduction in the steamship rate.

An effort at rate control was the fundamental motive back of the formation of the International

Mercantile Marine Company. It was also intended to effect savings through consolidation, but the control of transatlantic rates was the most pressing point. During the period of the Boer War, ocean rates everywhere were prosperously high and all carriers made unwonted dividends and added phenomenal sums to their reserve funds. In the spring of 1901 rates went down to the loss point, and with large shipbuilding operations still in progress there was no relief in sight. Early in 1902 the minimum-rate agreement was made, but it was never counted upon as a dividend-earner. It was made merely to prevent rates from sinking below the cost of handling in and out of the ship. During this same winter and spring the Morgan combination was in process of negotiation and formation. The aim was to make it as large as possible; large enough to exercise, with the aid of its German allies, a controlling, supporting, and steadying influence on rates for both passengers and freight. There was apparently no idea of excessive monopoly rates, but there was great confidence of easy control and of avoiding rapid fluctuations and the low points of depression that had at recurring intervals been bringing loss. The path to this goal was beset with difficulties. In the first place, some of the lines that were bought could be secured only at extravagant prices, and the capital was still further increased by stock-watering in the style of franchise-tenure finance. The Cunard Line, one of the greatest factors in the north Atlantic

and from this distance apparently an essential to the success of the venture, could not be bought because the stock was in strong hands. The alarmed British nation came to the rescue with new mail contracts and loans at low rates for new and faster ships. The general public thought this was a great aid to the Cunards. Some of the New York leaders in transatlantic shipping think that the government agreement is a handicap to the Cunard Line because in consequence of it \$13,000,000 is tied up in two ships fastened to one route, and that a route of declining supremacy. The two great subsidized German lines, with the personal backing of the Emperor and the strong financial and moral support of the rest of the government, appear to have been impressed by the promising force of the new undertaking. They made an offensive and defensive alliance with the combine, and later joined with it in the purchase of the Holland-America Line leaving the French Line the only continental interest of the first rank remaining outside, and with it they have apparently since concluded a firm alliance.

As a rate-controller the great corporation of Mr. Morgan and Mr. Griscom has been a failure. Ocean rates showed no indication of new influences in the autumn of 1902 when the new company went into operation. The combine and its allies have had to deal with a world condition of depression in ocean rates, and they have had the lively competition of the Cunard Line, which has had a

more independent attitude than any of the other and smaller independent lines. It is an old, well established, conservatively financed, and admirably located line, which is in a position to hit back with equal or better force after every move the Mercantile Marine or their associates may make in competition against it. The fast services of the combine are rivalled at Liverpool by that of the Cunard, and the continental emigrant business is drawn off at the Adriatic side door. The Cunards could not be absorbed at formation, they have not been coerced by competition and rate wars, and the conditions of truce under which the rivals have at times been acting in the intervals do not seem yet to have reached a basis for long duration. In addition to Atlantic competition, the International Mercantile Company, which is essentially a carrier from Atlantic ports, has had to meet the vigorous and uncompromising efforts of the Illinois Central and other Gulf railroads in building up Gulf commerce in bulk goods at the expense of the Atlantic ports.

CHAPTER V.

TRANSATLANTIC FREIGHT RATES AND THEIR CONTROL.—II. THE LINES BETWEEN AMERICA AND THE CONTINENT.

THE independent, competitive, and chaotic condition existing among the lines connecting the United Kingdom and the United States is in very marked contrast to the relationship of the continental-American carriers with each other. There are but two German transatlantic lines of importance—and there is but one interest, the North German Lloyd-Hamburg-American. They represent the culmination of a series of consolidations that ended competition in their respective ports. They never actually wage war on one another, and where their pockets are affected they are astonishingly agile in getting the best results for both, while standing together to prevent encroachment by any new concern. With their close traffic understanding and pooling arrangements, with their alliances with the International Mercantile Marine Company's Red Star Line and the French Line, and with the joint control of the Holland-America Line, a remarkable front is presented by these five dominant

companies in the continental freight and passenger business.

The Hamburg-American Company alone may really be considered as a vast and strong conference, the only difference being that it is all owned by one firm rather than managed by a conference of owners, and its solidity is therefore absolute. It dominates the German and Scandinavian trade with America, having its own lines to all ports of importance from Montreal to Galveston, and transshipping at Hamburg to Baltic and Scandinavian ports. Any small lines that from time to time go to Hamburg do so by its consent. In its earlier days it competed, fought, won, and consolidated until at present its competition is well-nigh irresistible. The great force of its competition arises from the fact that, having fifty-seven services in nearly all parts of the world, it is in the identical position of an American trust which kills a small rival by doing business at a loss in his small territory while it is making profit in the other ninety-five or ninety-eight per cent. of its own territory, and with this profit can pay dividends and also maintain a strangulation fund.

These two German companies in guarding their territory from competition have not only driven and kept rivals away from their own ports; but for the last forty years the establishment of services to Scandinavia has been regarded as an undue and unpermissible encroachment; because it might carry directly the goods now handled

by transshipment through Hamburg and Bremen, especially Hamburg.

The most recent of these episodes is the attempt of a Philadelphia firm to start a line from that city to Copenhagen. As soon as the service was begun it was advised by the Hamburg-American Company representatives to withdraw or take the consequences, and, having maintained the service, very severe and damaging competition followed by both lines and by new ones especially created by them for the purpose. The American firm, one of the oldest and most reliable in the business, filed a complaint ¹ before the Interstate Commerce Commission which may be taken as an excellent exhibit of rate and traffic control by an ocean carrier. It states that more than a decade ago the Hamburg Company established such a system of rebates that through its financial penalties ". . . shippers were not permitted to ship goods, whether they were interested directly or indirectly, either as owners of the goods or as agents, except by the lines of the Hamburg-American Packet Company, or by such lines as it might direct. This contract, when made with a German forwarding agent, covered what merchandise he might handle for any or all of his foreign or domestic principles, no matter by what route or routes he may have been instructed by

¹ "Statement of Peter Wright & Sons in the matter of the complaint against the Hamburg-American Packet Co. for pooling and maintaining monopolies in restraint of trade." June 19, 1907.

the *bona fide* owners of said merchandise to forward their goods to ultimate destinations in the United States.

“In other words, the Hamburg-American Packet Company not only secured the right absolutely to fix freight rates from Hamburg to the United States north Atlantic ports of Boston, New York, Philadelphia, Baltimore, Norfolk, and Newport News, but, in like manner, peremptorily demanded as well the right to name the steamship lines by which the shipper should forward freight from Bremen or Rotterdam to the said United States north Atlantic ports, thereby preventing the shipper from sending his merchandise by any other lines than those specifically designated by the Hamburg-American Packet Company.

“If the goods were destined beyond the American seaboard, this arbitrary selection of transatlantic lines frequently involved the determination by the Hamburg-American Packet Company of the United States inland carrier by which the goods should be forwarded from the seaboard to their final destination, and a consequent restraint of trade within the United States.”

This rebate contract first issued in 1895 has been withdrawn and a modified form issued.

“Under this modified form of contract, the Hamburg-American Packet Company agrees to carry all the goods of the merchant at a certain rate, provided he will ship goods to the six United States north Atlantic ports only by lines of the

Hamburg-American Packet Company, or such other steamship lines as that company may designate."

"This contract covers all shipments that may be routed via German or Dutch ports, the routing of which can in any way be controlled by the merchant. Both the goods of the merchant and those which may be ordered through him or transhipped under his directions are included in the contract. Though the principal may have goods to forward from different ports, the agent must submit to the Hamburg-American Packet Company the determination of the lines by which the goods in question are to be transported from the respective ports. The merchant in an interior distributing centre of the United States, ordering goods through his German representative, who is under contract with the Hamburg-American Packet Company, must submit to have all his goods shipped via such lines as the Hamburg-American Packet Company may dictate.

"Thus the Hamburg-American Packet Company not only fixes the rates from Hamburg, but it controls the selection of the steamship lines by which shippers may transport their goods from Bremen and Rotterdam to the United States north Atlantic ports."

"The Hamburg-American Packet Company, after years of aggressive tactics, stands to-day the absolute dictator of the German-American trade. No steamship company in the United States, or elsewhere, dares to question its lofty supremacy;

such temerity would be followed immediately by attempted extermination.

"Thus a company, foreign in its control, dictates the rates, the line, the manner, the method, the routes, and every other condition of trade and traffic, to which the United States producer, manufacturer, or shipper must humbly submit if he aspires to introduce his goods to the foreign consumers via the three most northern important continental ports."

The complaint goes on then to state that in addition to this contract control there is a further dominance through a pooling agreement which the strong hand of Hamburg also controls:

"We desire especially to make complaint against the eastbound or export Baltic pool dominated by the Hamburg-American Packet Company, and maintained and manipulated by them in New York, in conjunction with the North German Lloyd, Scandinavian-American Line, and Wilson (Hull) Line. The Baltic pool comprises the eastbound merchandise traffic through the United States north Atlantic ports of Boston, New York, Philadelphia, Baltimore, Norfolk, and Newport News destined to ports or places in the kingdoms of Denmark, Sweden and Norway, the province of Finland, and the German ports on the Baltic. This pool arbitrarily determines the ultimate rates for forwarding merchandise on through and on local bills of lading from the cities of Chicago, St. Louis, Kansas City, Omaha, Minneapolis, Duluth, Cleveland, and other manu-

facturing centres of the United States via the United States north Atlantic ports, either direct to the Baltic or via Hamburg, Germany; Bremen, Germany; or Hull, England."

The pool divisions were described as follows: "Routes to Baltic direct, and those via other nations, by which Baltic traffic is forced by the pool to travel, and percentages allotted each route:

The Hamburg-American Packet Company, via Germany	56 per cent.
The North German Lloyd, via Germany...	17½ "
The Wilson (Hull) Lines, via England....	2½ "
	<hr/>
	76 per cent.
The Scandinavian-American Line—direct to Denmark.....	24 "
	<hr/>
	100 per cent.

"To make easier and more certain the percentage division of the traffic, the field has been parcelled out to members of the pool. The Hamburg-American Packet Company maintains a service to Hamburg from each of the six United States north Atlantic ports of Boston, New York, Philadelphia, Baltimore, Norfolk, and Newport News. The North German Lloyd maintains a service to Bremen from New York and from Baltimore. The Scandinavian-American Line maintains a service to Copenhagen from Boston and from New York.

"The practical working of this pool was illustrated recently when one of the largest exporting concerns was approached and without solicitation

advised as to what their ocean rate of freight would be for their output for the ensuing season. They were also informed that later they would be advised (1) over what trunk line their shipments should be made; (2) to what ports their shipments should be forwarded; (3) what volume would be assigned to each of the export centres. This is clearly a case where the pool undertook to control, direct, and divert as best suited the interest of its members the output of the establishment.

“When a member of the pool is doing more than its apportioned share of the business, shippers are instructed to send their goods to ports from whence other lines make their sailings. A further balance is maintained by the Hamburg-American Packet Company for its own benefit. It orders the shipper to send his goods first to one and then to another of the six United States north Atlantic ports to which it maintains regular lines. Freight shipments are thus manipulated so that the services of the Hamburg-American Packet Company shall not be depleted at one port or overburdened at another.”

These are the statements of a comparatively small but old and very reliable firm which the Hamburg-American Company is now attempting to beat off from the Baltic service. The statements contained in the complaint are common knowledge, although most of them have not been determined in a court of law. Nor were they in any way disproved by the rebuttal of the Hamburg Com-

pany's attorneys. The Interstate Commerce Commission did nothing to question or determine their correctness, because the complaint was dismissed in March, 1908, on the grounds of lack of jurisdiction to control the ocean lines in any alleged restraint of trade.

The Hamburg Company is therefore allowed to go on undisturbed in its steady accretion of services and virtual control of rates. Unquestionably it has the strongest position and organization to be found among the world's great shipping companies. A virtual witness of this is its tenfold increase of tonnage in twenty years and its prosperous financial condition.

The evidences of the strength of its position and that of its allies need not be drawn wholly from complaints before the Interstate Commerce Commission.

A freight classification in the ocean carrying trade is a sign of great stability. The ship-owner in the Liverpool-New York trade hardly knows what freight classifications are. His life is a turmoil and a scramble for freight. He cannot make a classification because the exigencies of his competitive business would make him break class *i* before he had completed class *vi*, so he does not classify. But the Germans do. The North German Lloyd and its partners just mentioned have a westbound freight classification of six classes. That for 1906 was printed and distributed in New York in November, 1905, so great is their foreknowledge.

It divides freight into six classes and it is currently reported in shipping circle that the rates are maintained as announced.

The character of the goods has a profound influence on rate-making and classifying, as is shown by the different practices of the Germans in the east and westbound trade. They can maintain a rate going west, but do not attempt to do so on eastbound traffic. The difference is largely due to the character of the freight. The trade to the west is largely valuable manufactures which pay high prices. It is in these goods that the classification holds. The six classes do not provide for all articles. Heavy freight is almost excluded from the classification and reserved for special arrangements which are estimated to cover at least 25 per cent. of the traffic of one of these lines. As the eastbound freight is nearly all heavy freight, it is all reserved for special arrangements. This is necessary because goods of this character cannot bear high freight charges and would go to their destination by transshipment from British, Dutch, Belgian, or French ports if the German lines were not free to make some adjustment to the current rates. The freight rates on westbound goods, though high per ton, are really low in percentage of value of the goods. This high value makes it unprofitable for much of this class of freight to lose any time in following slower, more devious, but cheaper routes. Hence it becomes the easy prey of the carriers with agreements and classifications.

The London carriers are unique among British-American carriers in that they have a freight classification. It has seven classes and was formed in 1901 by crystallizing the results of long practice. It is instructive to note that it is in a trade controlled by few and strong hands, and that only an estimated 10 per cent. of the traffic is classified—the higher-class manufactures. On the other 90 per cent. the agreeing London carriers feel that they must be free to meet the market, which sets the rate for all freight moving in great quantities.

Why do the ocean carriers from Germany to America agree so completely while those from Great Britain compete so constantly? There are at least three reasons that may be cited in partial explanation. The first is the much smaller size of German maritime operations and the shorter shore-line this commerce serves. In Germany there are but two ports engaged in Atlantic foreign trade, and as these are almost twin ports, agreement is geographically simple. In England, there are three different coasts and at least six ports of the first magnitude and many smaller ones, each striving to get a larger share of the national commerce. The second reason may be found in the national characteristics. The Englishman loves his independence and will undergo financial privations to have it. The German has submitted to the national will, has received military drill, has obeyed orders and has moved in companies and masses. He is thereby trained

to common action. The third reason is the influence of the German Government. The great German steamship companies are probably more nearly a part of the government than are any other important lines in the world. They receive direct or indirect government aid and are benefited by the great desire of Germany to be a sea power. A part of the subsidy is in the form of special railroad rates on export goods on the government railroads. The personal side of this government relation, the lively interest of the German Emperor, who uses the great force of his personal and social prestige to uphold this branch of German sea power, is also important.

The lines to the southern countries of Europe carry an important part of our trade with the continent, but it is not necessary to give any full account of the rate problems of the lines between the United States and the Mediterranean for the reason that, while a complex array of incidents might be marshalled, they show no new principles. The long shore line, the several nations, the many ports combine to destroy any idea of homogeneity. Five jealous peoples have their outlet on the Mediterranean—the French, Spanish, Italians, Austrians, and Hungarians—and to add to the variegated aspect the German and English companies have been important factors in the carrying trade to America, which now has at least fifteen line services to the north Atlantic ports.

Their history this past fifteen years has been as checkered as is the cosmopolitanism of the carriers, wars, agreements, pools—more wars, more readjustments—but nothing different in principle or practice from that which has been narrated in the previous chapters.

CHAPTER VI.

THE PRESENT SITUATION AND FUTURE OUTLOOK.

Most of the factors which are now important in ocean transportation are factors in which there is change. This is true both in the technical side, which concerns the actual carrying of the goods, and it is also true in the management side, in which we find the transportation problems affecting law and public and economic relationships.

There are at least four aspects of the technical side which should be briefly referred to before taking up the more important or management side.

First.—The change of vehicle from sail to steam goes on apace. The general speed and celerity of modern business is violated by the irregular slowness of the sailer and the great size and economy of the modern steamship have long since enabled it to practically supersede all sail line traffic, and the last seven years of fierce competition in the shipping world has developed a steam tramp of such a size and such economy of operation that profit rarely hovers over the white wings of the sailer that tries to compete. The recent words of a British tramp vessel owner seem to be significant of its doom: "We still own five sailing ships,

but we find it very hard to make ends meet, as steamers are getting into sailing ship trades. The passing of the sailing ship entirely as an ocean carrier is in my opinion only a matter of a few years."

Second.—The relative positions of charter and line traffic are both shown by the discussion of one, for the other has virtually all the rest. The tramp as a factor in traffic appears to be relatively on the decline and absolutely on the increase. These conditions will doubtless continue for a very considerable period although it is conceivable that in a few decades the tramp may assume a stationary and possibly a declining total of service.¹

¹ The present (July, 1908) embarrassment of the transatlantic lines due to scarcity of freight is making trouble among the tramps, as shown by the following news note from the *Phila. Ledger* of July 8, 1908: "Tramp steamships are a drug on the market. A crisis actually exists for these wanderers of the deep, of which a dozen or more are lying idle in this port without charters and without hope of charters. In every large port of the world tramps are swinging day after day at rusting anchor chains with nothing in their holds save water or lead ballast.

"Such freights as are going out of this country at the present time are carried in the capacious holds of the great vessels of regular steamship lines, and the import trade is not sufficient to consider seriously.

"'What shall we do with them?' said an agent for British tramps yesterday. 'It comes to the point where the problem is of vital importance. Shall we put them out of commission and pay off the crews or keep them lying at anchor until something turns up? The first alternative is beginning to appeal to us. As far as I can make out the situation in the last five years, the prosperous times, the high freight rates and the like set shipping men crazy. They built vessel after vessel, out of hand, mortgaging one as soon as she was built to pay

This possibility of a static or declining position arises from the great growth of commerce in all parts of the world, which is continually causing the establishing of lines in places where the tramp alone had previously sufficed. A good illustration of this is to be found in the port of Pensacola, Florida, from which for a number of years tramp vessels had sailed to Europe and occasionally to the Orient with cargoes of lumber and cotton. This service, which has been almost entirely devoted to carrying the freights of the Louisville & Nashville Railroad, has been so organized that the management now announces a line service to various European ports, although the infrequency of departures has caused some people to question whether it is really a line service. However, the departure of vessels under regular management from one port to another, year after year, can probably be classed as line rather than chartered traffic although the interval is somewhat uncertain. It therefore represents a transfer of one more piece of the world's ocean from tramp line territory—a development which must inevitably go on as world commerce following the development of railroads

for another. Now what is the result? England, Germany, and the Scandinavian countries have more ships than there are cargoes for them, seek where they will.'

"The grain which will be shipped abroad in the fall is the only source of hope to tramp-owners. Even this is doubtful, considering the great additions which the last year has seen in the enormous cargo-carrying boats of the many steamship lines."

embraces a great and greater part of the world's sea-coast.

Third.—The private steamship line seems destined to have considerable absolute growth during the reasonably near future. It is part of the growth of the modern industrial corporation and there is no indication that we have reached the end of the development of larger-scale operations. Indeed the magnitude of industrial units is still on the increase and the development of integrated enterprises is very new. The exceedingly large part transportation plays in all manufacturing industry makes the development of units of transportation one of the most natural secondary developments in the integration of industry. Next after the acquisition of coal and ore lands by steel companies came the acquisition of steamship lines and railroads. The increasing knowledge of the world's resources, the limitations of local supplies, are likely to make more and more reasons why the modern industrial corporation should have its own steamship service as a part of its equipment.

Fourth.—The railroad steamship line is also steadily increasing upon the surface of several oceans. It is also an accompaniment of the large-scale enterprises, particularly those in which railroads are driven through vast and undeveloped territories and find their termini in ports of insignificant local trade. Another generalization may be pointed out, namely, that there is much greater likelihood of railroad steamship line development

along coasts where the current of ocean trade is at right angles to the coast line rather than along the coast line. For example, the railroads to the Pacific coast of North America find the goal for their ocean traffic across the sea. The steamship line sails away from the coast; there is no temptation for it to pass other ports. In South America these conditions are essentially different. The commerce of both the western and eastern shores of that continent going up and down the coast passes all ports, so that any railroad that taps that coast finds its terminal facilities within near reach of a stately procession of steamships which will gladly call for any reasonable amount of freight. The necessity of a South American railroad supplying its own oversea connections is therefore unthought of.

If there had been a similar coastwise development of transportation routes along the shores of the north Pacific to the only available markets our Pacific railroad steamship lines would probably never have existed. The conditions would have resembled those to be found in New York, where every railroad that can get a terminal upon that splendid harbor is within reach of steamship connections to every quarter of the globe.

There is therefore a tendency for the necessity of railroad steamship lines to decline, due to the development in other ports of many ocean lines; but there nevertheless remains and will remain a large number of ports which must be comparatively small because of the proximity of other

ports, and for the small ports there will continue to be the need of railroad steamship lines.

The second main division, the management, is one in which there are also changes in progress. There is steady increase in the size of the carrying unit, the vessel, and in the management unit, the line or system. Both are growing astonishingly and the end is not in sight for either unit.

It is around the question of rates—line traffic rates—that the greatest interest centres and the greatest problems lie.

We have no great changes to expect on the cost of service to the shipper. He is already accustomed to all kinds of rates, one might say all kinds of rates together, so greatly do they at times fluctuate. The real rate question is that of rate control. Will it be by the free force of competition or by the restraint of rate agreements?

To start with we have the fundamental factor of the freedom of the sea, which has, so far as line traffic is concerned, practically developed for much of the world ocean into a normal condition of rate control with frequent adjustments and a local domination of the tramp rate. This is the normal condition in the trade of Europe with practically all parts of the world except the United States. Furthermore, it has come to be the normal condition with regard to the rates from New York to most quarters of the world, and it is probably safe to say that there is visible a distinct movement toward the increase of rate control. If it comes to include the north Atlantic it has

practically embraced the world. Several reasons for this increase of control may be mentioned:

1. The companies are steadily getting larger and the time has now been reached when the agreement of seven or eight interests would produce a minimum agreement that might hold if a satisfactory freight classification omitting grain and flour should be made.

Will the greater part of the carrying trade upon the north Atlantic ever be controlled by stable agreements? As has been previously pointed out, the difficulties are many, but the chances of agreement seem better than they have ever been in the past.

2. The growth of the single-port conferences is suggestive of the final control. The German situation described above is an overgrown port control with Hamburg as its point of origin. The London carriers have a better agreement than the Liverpool carriers, and it serves as a good example to those who have not agreed so well.

3. Grain, long the great staple of the eastbound trade, is now becoming of less relative importance in the trade, because of the great increase in manufactured goods. This freight change is favorable to rate control, because manufactures will stand a much higher and more steady rate than that paid by grain.

4. Recent improvements in ship-building have practically emancipated the newer ships from their old dependence on grain. When they had to have it as ballast, they were willing to bid low

to get it. Now the newer ships admit water into their ballast tanks, and they no longer depend on grain if it does not pay them as freight. The lowest mark in grain rates from New York to Liverpool occurred prior to 1890 before the general introduction of water ballast.

5. The losses of the last great depression in the ocean shipping business have brought home to the ship-owning fraternity the necessity of some protection, and they have had some rather valuable object lessons in the various attempts that have been made to alleviate the situation.

There are some principles that any freight agreement must observe. It must limit itself to a minimum and there must be rather frequent readjustments of rates and of traffic divisions. It is because of the necessity of readjustments of traffic divisions that most of these arrangements in other trades have come to their end. The steamship companies will probably have to do as the railroads do, agree on a rate, but compete in some of the other forms that competition may take, readjusting their agreements with resulting changes in conditions. The great trouble with these agreements is that a flat rate with insufficient business throws the traffic to the best lines and cuts off the poorest, who at once begin to cut rates to get freight. The aim of the steamship rate agreements should be to maintain living rates and leave all parties free to grow and develop and then readjust without a resort to the rate wars which now come so easily. This is no simple task, and it is further complicated

by the fact that it is impossible to establish and maintain a rate which prohibits the export of produce to a competitive market to meet regional competition. Those interested in shipping think that they have been more ready to make rate concessions for this than the American railroads. This has occurred in part because while the railroads, during the last five years, have been crowded with domestic traffic, the steamship lines have been sorely pushed for freight. The prompt concessions made by the Atlantic steamship lines have unquestionably rendered a valuable service to America's export trade. As one carrier expressed it: "If the hog crop in Austro-Hungary is larger than usual, it affects the provision market of the whole continent, and we have to reduce the rate on Chicago packing-house products to get them on the market. And the rate on southern cotton-seed oil is always the same as the rate on provisions."

This list of requirements as stated in the above paragraphs is essentially sound and its requirements bear upon human nature with a load almost as heavy as does the golden rule upon ordinary human conduct. The voluntary agreement is a weak thing and it must be so. Persons in the best of positions to know assure me that these gentlemen's agreements are frequently broken under the pressure to get freight.

That means that agreements to be strong will be dominated by some strong central force, like the Hamburg-American line in the German-

American situation, the International Mercantile Marine in the London-American situation, or the Union Castle Line in the United Kingdom-South African situation.

A group with such a leonine member is strong enough to make tremendous competition to repel a new rival. It has cost a million dollars for a firm to fight its way into the South African Conference, and this money was for the fight, not for the capital.

When once these rate-control groups are established, especially as in the case of the Hamburg-American Company, where one management does nearly all and has many services, it develops a peculiar death-dealing power in competition.

There is no indication that the present wave of government control of corporations for the benefit of the individual is likely to stop rate-control upon the sea, or limit the monopolistic power that comes with the power to kill that results from the great size of the largest companies.

The British Government has recently investigated the matter very thoroughly through commissions, and the result was a surprising amount of condoning after the many fierce and bitter things that have been said against the shipping combines. Upon the American side of the water the situation seems at the present time even more hopeless so far as government is concerned.

The recent attempt of Messrs. Peter Wright & Sons, of Philadelphia, to secure the aid of the Interstate Commerce Commission against the encroach-

ments of the Hamburg-American Steamship Line is an interesting proof of this point. Their appeal for relief against pooling and rate-control in restraint of trade has been denied. The closing words of the decision of the Commission are as follows: "This ruling is the only one which is consistent with what seems to be the policy of the law, viz., that while restriction and control are essential as to the inland carriers of foreign commerce, the ocean carriers of such commerce should remain unrestrained and free. There is not to-day, and never has been, such a thing as stability of rates upon the water. Perhaps it is not desirable that there should be. The ocean is a highway free to all. No franchise is needed to sail the seas, nor is the establishment of a line of ships founded, either in law or in economics, upon the theory of a public-serving monopoly which underlies the relation of the railroad to the state. It may well be, therefore, that without regulation, and by reason of natural competitive conditions, the public will be best served, and in the end treated more equitably, by leaving the water carriers to foreign lands entirely unhampered by legal restrictions such as the people of this and other lands have found it necessary to impose upon the railroads. Under the ruling here made the fluctuation in the total through rate charged from an inland point in the United States to a European or Asiatic country will fall where, in fact, the fluctuation is, at the seaboard. The competition in rates will thus

manifest itself where the competition really exists, and where the law presumes it will unrestrictedly continue, viz., where the ships bid against each other for cargo."

It is most unfortunate that the lawyer has to make our laws, for the legal mind dealing with precedents is, like its Latin words, fed by the mediæval past and constantly striving to control and interpret present conditions in the terms of the long-dead past. It is notorious that legislatures talk about railroad transportation and legislate about it with the idea that the business is as competitive as the selling of horses and wagons at a public vendue, and here we see the Interstate Commerce Commission referring to the law's vision of the freedom and free competition of the sea "where ships bid against each other." This vision seems well-nigh ludicrous when inspired by the Hamburg trade of the Hamburg-American Company, which it is well known has long had a wonderful control over almost the entire line trade of the port of Hamburg with the North American continent.

This legal view point entirely overlooks the fact that there can be control through agreements where competition is theoretically possible, and there can be the most emphatic kind of control through the development of one interest that has such great size that it can destroy by competition any ordinary new beginner in any field, and it can do this with profit to itself because with the great scope of its business it can be mak-

ing money with eight or nine tenths of its organization and losing money over the remaining fraction where it is effectively killing a competitor.

Just how far this rate-control is going to go and how much it is likely to cause hardships through excessive rates it is difficult to predict. Unrestrained competition is usually disastrous to carriers, and monopoly is not noted for its reasonableness.

The opportunity and limitations of the individual and the way line competition soon works around into rate-control are all well illustrated by a recent episode in the trade between New York and the Orient. The lines to this quarter of the globe had a good agreement, to which they were holding with considerable firmness and to the irritation of many shippers. One of these shippers happened to be no less an individual than the United States Steel Corporation (the largest individual in the world), which in the year 1907 had contracts for the delivery of 100,000 tons of steel goods in Manchuria. This was a splendid nucleus for the founding of a new line in a trade where the ordinary vessel carried about 6,000 tons of freight, but, inasmuch as there was prospect of other orders, the company itself was in a position to furnish more than half the cargo for a fortnightly sailing. Accordingly arrangements were made with European owners for the founding of a new line to China. As the steel goods furnished all the heavy cargo that the ships needed, the managers were in a position to make very keen competition for

necessary light cargo to finish filling the space in the holds of every outgoing vessel. After a few months of this competition, the new line was admitted to the conference. By this agreement with the other members of the conference, competition ended, and the steel company got the full rate for the outside cargo which its vessels carried, and it of course got this much more advantage for the carrying of its own goods.

Rate agreements, or some form of rate-control with frequent readjustments, are the normal thing in all important trades but the north Atlantic, and are the existing condition in a considerable part of that, and the prediction is made that this will increase. One of the two great traffic classes, namely the passenger traffic, has a normal condition of rate agreement and is a constant and shining example for the warring makers of freight rates. Two causes are conspicuous in explaining the difference between the extent of passenger-rate-control and freight-rate-control. One is the question of ballast, the other of the great fluctuations in the amount of traffic.

Ballast.—For a long time, every ship that sailed the ocean had to get some heavy cargo from New York (usually grain) to make her ride well. There is now less need for this because of the construction of ships with water ballast compartments, but this ballast factor yet lingers in the making of freight rates because there is always a desire to get a certain kind of freight to complete the vessel's cargo. If she is full of heavy goods

a little light goods can be put in and the rate be cut to get them. The reverse may be true for other kinds of goods for the ship in the next pier. Hence the constant tendency to cut rates. The passenger accommodations of a ship have no such shifting utility and demand. They can be carried empty or full and it makes no difference to the navigation of the ship, and they can usually only be filled with the one kind of thing for which they were intended.

The Fluctuations of Passenger Traffic.—There is no important body of passenger traffic where there is not at some season all the ships can carry and at some other season but a fractional part of this amount. Therefore this seasonal regular and absolute inability of all ships to get their full quota brings them annually face to face with the problem of rate-cutting. If they start to cut the rates to get passengers they can come down and down to absolute cost and still most of the carriers cannot get the traffic. Therefore they have annually had this problem to face and they long ago found that wisdom demanded that they should restrain the desire to compete, for it could but lead to loss for all; hence the virtual constancy in the control of passenger agreements.

In a period of almost uniform loss in 1902 we saw the same reasoning bring about a minimum freight agreement between carriers running forty-six services between the north Atlantic and United Kingdom. There are good reasons why this will have many successors. At least two factors are

of importance to make reasonable the expectation of this increase. First is the great tendency toward the decline in weight of the American trade with Europe. Our increase in population and industries are generally recognized as being factors which through our increasing demand for food and raw materials will cause a decline in the bulk of our traffic with Europe; certainly a decline in relation to its value, if not a positive decline in bulk.

Along with this there has been a tremendous increase in passenger traffic, both of the pleasure class and from the movement of labor, which has lately taken developments which show us that we have an international labor market. Not only can prosperity in America call a million workers a year from Europe, but the same prosperity will send scores of thousands of them back to winter with their friends in pleasant Europe, while depression in America sends hundreds of thousands back across the Atlantic possibly to stay, probably to return upon the next call of high wages, which call can be heard very promptly through millions of letters from friends scattered in almost every county in the United States.

This passenger increase and freight decrease is showing itself in the positive decline of purely freight lines from New York and in the great prominence of large steamers of medium speed which can carry surprising numbers of passengers or tremendous quantities of freight. Many of them go further and have considerable space

which is useful for either freight or passengers as the exigencies of the trade demand.

This increased importance of passenger trade will bring more and more before the minds of transatlantic carriers, particularly those from New York, the importance of agreements in their operations as evidenced by their passenger agreements. Further, the great amount of shipping that the passenger traffic demands is likely to bring with increasing frequency those periods when the amount of freight is utterly insufficient for their capacity, so that they are with regard to freight as with regard to passengers in the dull season—not enough to go round; and if they choose to cut each other's throats by striving for the fraction that exists they can do so and still make little or no profit out of it. The freight business is becoming a by-product of the passenger business, with a tendency to share its rate-control.

The Mediterranean is the first region in which these conditions have been developed to their fullest. Here the increase of passenger business has assumed unprecedented proportions and the freight has had a similar astonishing decline from the great development of the American fruit business in Florida and California, which has almost entirely cut off the greatest staple of Mediterranean freights to New York.

A recent agreement covering Mediterranean freights is the most natural consequence of the above. Therefore we may expect normal developments to produce an ultimate freight-control

in the north Atlantic approaching in method and force the passenger-control which already exists, and it may be expected to start in the Mediterranean and gradually embrace the north Atlantic trade. The trade of the Gulf of Mexico, with its great seasonal development of cotton and grain, will be more difficult to control because of the greater importance of the tramp steamer in it.

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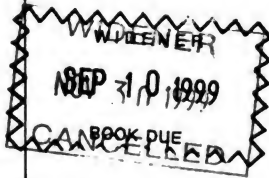
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